

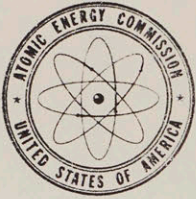
MC 0572

BOX 10-10 FOLDER 3

Russia [1974-1975]

01c

Rustine



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

JUN 3 1974

Professor A. M. Petrosyants
Chairman
State Committee on Atomic Energy
Staromonetnii per 26
Moscow 180, USSR

Dear Professor Petrosyants:

This is in response to your letter of April 23, 1974, on the question of "discovery" of new elements. We agree in principle that efforts should be made to resolve this problem if possible at an early date.

At the present time Dr. Robert Silva of the Oak Ridge National Laboratory is a Guest Professor for one year at the University of Mainz, West Germany. He is a radiochemist and quite familiar with the Lawrence Berkeley Laboratory (LBL) heavy element program and staff. I would suggest that Dr. Silva be invited to Dubna in June for a visit of several days for preliminary discussions. Such a visit should be of considerable value for any subsequent visit by two American physicists to Dubna in the autumn of this year.

I also understand that Professor Flerov is expected to attend the International Conference on Reactions Between Complex Nuclei in June to be held at Vanderbilt University, Nashville, Tennessee. The Lawrence Berkeley Laboratory has extended an invitation to Professor Flerov to come to LBL following the conference for a visit and further discussions on this subject.

I hope that these arrangements can be worked out as a cooperative effort in research on the "fundamental properties of matter" in the spirit of our February meeting.

My very best wishes.

Sincerely,

Chairman

cc: Professor V. F. Weisskopf, MIT
Professor K. Strauch, Harvard U.

Aug 2, 1974

Dear Sid:

I'd like to express my interest in a
visit to high energy theoretical physicists in
the Soviet Union next spring, + particularly
to V. N. Gribov in Leningrad. I expect
to be in Israel for a month or 6 weeks
during March - April 1975, and that might
be a convenient time for a two or three
week stay in the Soviet Union as well.

Gribov and his group have for years been
working in areas very closely related to my
own interests - namely very high energy hadronic
processes - and have developed a set of views
somewhat different from my own as to what
to expect. I think that a few days of
direct discussions would be very illuminating
for me, + hopefully also for them, in

2DD
8/5/74

ASPEN CENTER FOR PHYSICS
BOX 1208 ASPEN, COLORADO 81611

trying to localize + define the origins of our
different views.

In any case, if the exchange program
you mentioned in La Jolla last month really
exists, I'd be very interested in arranging
a visit through it.

Best regards

Fred Zachariasen.

STANFORD UNIVERSITY

Russia

STANFORD LINEAR ACCELERATOR CENTER

Mail Address

SLAC, P. O. Box 4349
Stanford, California 94305

September 10, 1974

Professor V. F. Weisskopf
Department of Physics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Dear Viki:

I'm writing in connection with your role as chief coordinator for U.S.-Soviet exchanges. I have received the two enclosed communications from physicists who wish to visit the Soviet Union under the exchange agreement.

One is from Fred Zachariasen of Cal Tech, and his letter is enclosed. The other is from Lord and Kotzer of Washington and includes a proposal for an emulsion exposure at Serpukhov.

I hope these can both be handled under the exchange agreement.

Best wishes,



Sidney D. Drell

SDD:br

Enclosures

cc K. Strauch
H. Kinney
W. Wallenmeyer



national accelerator laboratory

P.O. Box 500

Batavia, Illinois 60510

Date 10/17/74

Viki Weisskopf:

You took a copy of a letter I wrote to Frank Yang concerning Russian participation in International Conferences. To clear the letter up prior to wider exposure, I have now sent Frank the enclosed slightly modified version. If you have not already used the other letter, please use this instead.

E. L. G.

October 17, 1974

Professor Chen-Ning Yang
 Department of Physics
 State University of New York
 Stony Brook, L.I., New York 11790

Dear Frank:

You are aware, from our conversations prior to the IUPAP National Committee meeting in Washington and prior to the IUPAP Commission on Particles and Fields meeting in London, that I am very much concerned about apparent USSR violations of the spirit of free expression in science and free exchange of ideas and of scientists. In spite of my concern (or, perhaps, because of it) I do not believe that IUPAP should overstep its authority. I would not wish to jeopardize the significant gains that have been made over the past decades. For that reason I would prefer that before taking any kind of action we clearly establish a basis for such action.

In my opinion, the failure of the USSR to permit Okun or Gribov to attend, as invited speakers, the NAL conference in 1972, and the failure, again, to send Gribov as an invited speaker to the London Conference in 1974, constitute serious violations of the spirit of IUPAP. I understand that we have no right to interfere in the internal procedures of the Soviet scientific community by dictating which scientists they should nominate to participate in a conference and which they should not. On the other hand, every conference host has the right to invite whatever qualified scientists he wants, and he even has a responsibility to invite outstanding scientists whom he wishes to give talks or to organize sessions at his conference.

In the case of the 1972 conference, I purposely adopted the practice of paying all expenses for all invited speakers and session organizers, so there could be no economic excuse used for the invited speakers not to have been permitted to attend. It seems to me that if some nation is going to prevent such invitees from participating, it should be required to give some very good reason for doing so.

Beyond the problem of invited speakers there is also the general question of meeting deadlines with regard to the submission of lists of nominees for participation. In the

past two conferences, deadlines have been set in a normal cycle and ample advance notice was circulated to all potential participating countries. All but the Eastern European nations were able to come reasonably close to meeting those deadlines. Lists of USSR nominees, to the contrary, were not made available until months after the deadline, in some cases within less than a month and even within a few days of the time of the conference itself.

Finally, contributions to conferences from Russian participants never meet the deadlines that are imposed and met by other conference participants. For the XVth and XVIIth International conferences, a working session of speakers and organizers was held the week before the conference. Even for those organizing sessions, the contributions from the Soviet Union have not been available. They often are produced, for the first time, when the Russian delegation arrives, only a day before the start of the conference.

In consideration of all of these violations of the general spirit of free exchange among scientists, I am sympathetic to the kind of protest that has been voiced by Murph Goldberger in his recent letter to you. However, I believe it is unwise to impose a penalty on the Soviet Union without first clearly setting standards of procedure which we expect them to meet and giving them an opportunity to meet them. Therefore I should like to make a substitute suggestion.

I propose that our Commission adopt the following practices and requirements to be imposed on all participants in future conferences we sponsor.

1. The selection of invited speakers and session organizers is the sole responsibility of the conference host. No scientist, so selected and interested in participating, should be precluded from participation in the conference by action within his own country.
2. Deadlines for submission of lists of nominees and for submission of scientific contributions must be observed by all participants.
3. If any national group fails to meet these requirements, then that nation should be excluded from consideration as a host to subsequent IUPAP conferences until its failure to meet such requirements has been demonstrably remedied.

The purpose of this scheme, obviously, would be to use the desirable prestige of hosting conferences as a lever to influence nations to conform to reasonable and pre-established

standards in their participation in international conferences abroad. The standards to be observed by conference hosts have already been amply discussed.

Our Commission's next major conference will be the International Conference on Electromagnetism and High Energy Lepton Interactions to be hosted by SLAC this coming summer. I would like our Eastern European colleagues to be aware of my concerns prior to that meeting. I know, from numerous conversations, that my own concerns are shared by most high energy physicists in the U.S.

It would be possible, I imagine, to circulate my proposal to all Commission members to seek an official approval. In that way the requirements could be officially established prior to the SLAC meeting and even applied in connection with our final decision regarding the site of the 1976 bi-annual conference which is now scheduled for the USSR. That conference is rather far along in its planning to be considered for a change in site. On the other hand, the SLAC conference is still sufficiently far in the future to give the USSR hosts for '76 ample opportunity to meet the requirements, particularly if we make them known without undue delay.

Sincerely,

Edwin

Edwin L. Goldwasser

cc: Allan Bromley, Yale
W.K.H. Panofsky, SLAC
Sidney Drell, SLAC
Joseph Ballam, SLAC

Princeton University

DEPARTMENT OF PHYSICS: JOSEPH HENRY LABORATORIES

JADWIN HALL

POST OFFICE BOX 708

PRINCETON, NEW JERSEY 08540

OFFICE OF THE CHAIRMAN

August 30, 1974

SEP 5 1974

Professor Yang Chen-ning
Department of Physics
State University of New York
Stony Brook, Long Island, New York 11790

Dear Frank:

Since the London Conference, I've talked with a number of people who feel quite strongly - as I have for years - that something must be done about the way the Russians have been behaving toward their scientists and toward Western conference organizers. Their behavior in London was typical: Their best scientists are refused permission to attend; far fewer delegates than expected arrive, with much inconvenience to the organizers who reserved hotel rooms, etc., who also had to refuse admission to many people who would have liked to come. None of this, of course, is new.

I think it is time to seriously ask ourselves whether we should put up with this any longer and whether there is something we can do that might help our Russian colleagues. It is clear that the way things are now the Russians contribute nothing but trouble when the conferences are not held in the Soviet Union and, unfortunately, very little in the way of science when the conference is there.

I feel that our continued willingness to tolerate boorish, unforgivable behavior actually weakens the case of the scientists who I sincerely believe are the victims of bureaucracy and, in many cases, blatant anti-Semitism, as in the cases of Gribov, Okun, Zeldovich, Gelfand and others. The point is that they need us far more than we need them, and the politicians there must be given that message.

Now the proposal: I believe that IUPAP should take the '76 conference from Russia and give it to Japan. Russia should be told that she can have it in '78 provided there is a distinct and observable change in practice, such as: sending the names of their delegates to the '76 conference three months in advance (or whatever everybody else does); guaranteeing the presence of all those who accept invitations to be rapporteurs or chairmen; granting permission to their scientists to attend the smaller off-year conferences in '75. Probably one can think of more things.

Sincerely,

Murphy

M. T. Goldberger
Chairman

MLG:mf

P. S.

I realize that this proposal has little chance of passing your High Energy Physics Commission, but I really do feel quite strongly that we should try to do something and this letter is merely an expression of my frustration and relative inability to come up with any very good ideas. The Russians have shown consistently a surprising sensitivity to outside pressure, even though the pressure groups have no direct power over them. I think we have been derelict in our duty. Dick Feynman is the only one I know with guts enough to have flatly refused to visit the Soviet Union on the basis of their suppression of intellectual freedom. I think it is time the rest of us stand up and be counted.

We shall probably be coming out to Stony Brook one of these days to visit our children and we will give you a ring. As you know, Joe is now a student in the Physics Department and seems quite happy about this and, in particular, with his job with Bud Good.

Dear Sir,

I should like to attend the 1975 International Symposium on Lepton and Photon Interactions at High Energies, will be held August 21 through August 27, 1975 at Stanford University, Stanford, California.

I expect your invitation.

Yours Sincerely,

Avram

My Address:

dr. N. M. AVRAM

Department of Physics,

Timișoara University,

Bulevardul V. PÎRVAN Nr. 4

TIMISOARA, ROUMANIA

1/22

Telefax

western union

Telefax



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PROF J BALLAN CHAIRMAN ORGANIZING COMMITTEE STANFORD LINEAR

P O BOX 4349

STANFORD/KALIFORNIA 94305 (USA)

PARTICIPANT IN THE 1975 LEPTON/PHOTON SYMPOSIUM

FROM THE GERMAN DEMOCRATIC REPUBLIC WILL BE

PROF J RANFT PLEASE SEND AN INVITATION TO THE

FOLLOWING ADRES FPOF DR JOHANNES RANFT KARLMARX-

UNIVERSITAET LIEPZIG DDR 701 LEIPZIG LINNENSTR 5

KARL LANIUS

64 (36-68)

1/5

WU 1270 (R8-66)

cc: Addis
Shim

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

CAMBRIDGE, MASSACHUSETTS 02139

April 22, 1975

Dr. Goldwasser -

Professor Weisskopf has asked me to send the enclosed correspondence to you and he also asks that you please return them to him when you have finished with them.

Diane Eulian
Secretary

Dear Diane,
I zeroed a
copy of these documents
for Mr. Goldwasser.
Thank you for
sending them.
Selen Peterson

RECEIVED

APR 25 1975

DIRECTORS OFFICE
FERMILAB

January 9, 1975

Ballam to Bogolubov

Acknowledges his letter received 12/30 and suggests naming one or two alternates.

Note: We did not forward I. F. Ginzburg's letter to Chuvilo, Markov and Bogolubov as was done in other letters giving regional quotas to chairmen (see letter to Miecowicz, dated 1/2/75, as an example).

East Germany

November 15, 1974

Ballam to Lanius

Requests Lanius assume responsibility for East German delegation.

January 5, 1975

Lanius to Ballam

Cable naming Johannes Ranft, Leipzig, as DDR delegate.

January 6, 1975

Ballam to Lanius

Informs Lanius DDR delegation quota is two, plus two alternates.

Poland

November 13, 1974

From A. Jurewicz

Wants to come to Symposium.

December 3, 1974

Miesowicz to Ballam

Accepts responsibility for selecting Polish delegation.

December 11, 1974

From Leszek Lukaszuk

Wants to attend Symposium.

January 2, 1975

Ballam to Miesowicz

Polish delegates set at two, plus two alternates.

Czechoslovakia

January 8, 1975

Ballam to Sadlak

Requests he assume responsibility for Czech delegation of two, plus one alternate.

Hungary

January 6, 1975

Ballam to Pocsik

Informs him Hungarian delegation set at two delegates, two alternates.

Rumania

November 22, 1974

From N. M. Avram

Requests invitation.

December 18, 1974

Ballam/Bloom to C. Tzitycica

Requests he name Rumanian delegation.

January 2, 1975

Ballam/Bloom to Tzitycica

Sets Rumanian quota at two delegates, two alternates.

Other Attachments

November 5, 1974

Ballam to Weisskopf

Outlines our efforts at coordinating Soviet participation.

January 2, 1975

Ballam to Weisskopf

Details Bogolubov's response and the total quota allocation for the Soviets.

January 3, 1975

Quota table listing quota allocations.

Tab listing of all those who responded to the First Notice by requesting an invitation.

Pending

1. Acknowledgment and/or acceptances from Polyakov and Khose to be invited speakers. Letters of invitations to them requested reply no later than March 1, 1975.
2. Reply or acknowledgment of letters has yet to be received from Chuvilo and Markov. Reply has been requested before February 7, 1975.

RTN:k



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

ORGANIZING COMMITTEE

Chairman:

J. Ballam

Program Chairman:

S. M. Berman

Arrangements Chairman:

F. D. Bloom

J. D. Bjorken

W. Chinowsky

S. D. Drell

F. J. Gilman

R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Professor N. Bogolyubov

J.I.N.R. (Dubna)

Head P.O. Box 79

Moscow, USSR

Dear Professor Bogolyubov:

Thank you for your letter nominating three delegates from Dubna to the Symposium.

Since we have set a quota for the Soviet Union of 25 delegates and 13 alternates, I have asked Professor Chuvilo to be responsible for the selection of the remaining 22 places. If you wish, you could send me the names of one or two alternates to the three persons you have already named in case for some as yet unknown reason one of them would be unable to come.

Again I wish to express my appreciation of your efforts on behalf of the Symposium.

Sincerely yours,

Professor J. Ballam

Chairman, Organizing Committee

bcc: V. Weiskopf

*R. Nelson ✓
C. Bloom*



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

January 8, 1975

ORGANIZING COMMITTEE

- Chairman:
J. Ballam
- Program Chairman:
S. M. Berman
- Arrangements Chairman:
E. D. Bloom
- J. D. Bjorken
- W. Chinowsky
- S. D. Drell
- F. J. Gilman
- R. Hofstadter
- R. F. Mozley
- W. K. H. Panofsky
- M. L. Perl
- B. Richter
- R. E. Taylor

Prof. J. Sadlak
Institute of Physics
CSAV Prague 8
Na Slovence 2
Czechoslovakia

Dear Professor Sadlak:

As you probably know, the 1975 International Symposium of Lepton and Photon Interactions at High Energies will be held at Stanford University. The dates of the Symposium are August 21-27, 1975. Attendance will be by invitation only with a total of 430 physicists participating.

For this Symposium the subject will be enlarged to cover all high-energy lepton-induced reactions, including photoproduction, inelastic and elastic electron and muon scattering, colliding beams of electrons and positrons, neutrino- and antineutrino-induced reactions and leptonic final states in proton-proton collisions.

We would greatly appreciate it if you would be willing to take responsibility in the selection of the Czech delegates. The Arrangements Subcommittee has decided that the quota for your country is 2 delegates, plus 1 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the First Notice issued last October 1. We need to know the names of prospective delegates by no later than February 7, 1975, in order to be able to issue invitations in good time.

The Arrangements Subcommittee wishes to express its sincere appreciation for your efforts in their behalf.

Sincerely yours,

Professor J. Ballam
Chairman, Organizing Committee

Professor E. D. Bloom
Chairman, Arrangements Subcommittee

Please address all correspondence to: Symposium Secretary
Stanford Linear Accelerator Center
P. O. Box 4349
Stanford, California 94305

SLAC Telephone
(415) 854-3300



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

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August 21-27, 1975

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S. D. Drell

F. J. Gilman

R. Holstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

January 6, 1975

Professor K. Lanus
Inst. fur Hochenergiephysik
Deutsche Akad. D. Wissensch
Platenanallee 6
Zeuthen/Berlin
German Democratic Republic

Dear Professor Lanus:

Thank you for agreeing to take responsibility to select the German Democratic Republic delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies to be held at Stanford University, August 21-27, 1975.

The Arrangements Subcommittee has decided that the quota for your region is 2 delegates, plus 2 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the first notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

The Arrangements Subcommittee wishes to express its sincere appreciation for your efforts in their behalf.

Sincerely yours,

Professor J. Ballam
Chairman, Organizing Committee

Professor E. D. Bloom
Chairman, Arrangements Subcommittee



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R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

January 6, 1975

Professor G. Pocsik
Institute of Theoretical Physics
Eotvos University
Budapest, Hungary

Dear Professor Pocsik:

Thank you for agreeing to take responsibility to select the Hungarian delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies to be held at Stanford University, August 21-27, 1975.

The Arrangements Subcommittee has decided that the quota for your region is 2 delegates, plus 2 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the first notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

The Arrangements Subcommittee wishes to express its sincere appreciation for your efforts in their behalf.

Sincerely yours,

Professor J. Ballam
Chairman, Organizing Committee

Professor E. D. Bloom
Chairman, Arrangements Subcommittee



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R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Professor I. Chuvilo
I.T.E.P.
Bolshaia Tscheremuschkinskaia 89
117259, Moscow V-259, USSR

Dear Professor Chuvilo:

I have heard from Professor Bogolyubov who has recommended three delegates from Dubna to the Symposium.

Since the quota for the Soviet delegation has been set at 25, I would very much appreciate it if you would take responsibility for selecting the remaining 22 delegates, plus 13 alternates. I would appreciate it if you would list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the 1st notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

The Arrangements Subcommittee wishes to express its sincere appreciation for your efforts in their behalf.

Sincerely yours,

Professor J. Ballam
Chairman, Organizing Committee

JB:hm

Copy to: Professor A. Markov
USSR Academy of Sciences

bcc: V. Weiskopf ✓



ОБЪЕДИНЕННЫЙ ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ

JOINT INSTITUTE FOR NUCLEAR RESEARCH

101000 Москва, Главный почтамт п/я 79. 101000 Moscow, USSR, Head Post Office, P.O. Box 79
Абонентский телеграф: 20-51-03 Telex MSK Dubna 7521 Tel. 226-22-29

№ _____

"8" December 1974

Professor J. Ballam
Stanford Linear Accelerator Center
P.O. Box 4349
Stanford, California 94305
USA

Dear Professor Ballam,

Thank you for your letter concerning the 1975 International Symposium on Lepton and Photon Interactions at High Energies that is to be held at Stanford University on August 21-27, 1975.

As an International Research Center the Joint Institute for Nuclear Research would like to have Drs. P.S. Issaev, R.N. Faustov and E. Knapik participate in the above mentioned Symposium. As to the nominees from Soviet Institutes, I have sent copies of your letter to Professors M.A. Markov and I.V. Chuvilo and I hope they would be able to inform you in time about the Soviet delegation.

I would kindly like to ask you to have registration forms and any other available information about the Symposium sent to our Institute for Drs. P.S. Issaev, R.N. Faustov and E. Knapik.

Sincerely yours,

Professor N.N. Bogolubov
Director

Joint Institute for Nuclear Research

12/30

A. N. Kulam
Clon

STANFORD UNIVERSITY

STANFORD LINEAR ACCELERATOR CENTER

Mail Address

SLAC, P. O. Box 4349
Stanford, California 94305

November 6, 1974

cc: N. Brand
D. Dupen
R. Hofstadter
W.K.H. Panofsky
R. Nelson
R. Shannon
S. Stamp
V. Weisskopf

Professor Chang Wen-Yu
Institute for High Energy Physics
Academy of Sciences
Peking
Peoples Republic of China

Dear Professor Chang:

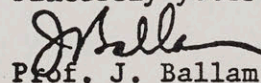
I understand from Professor R. R. Wilson that on his recent visit to the Peoples Republic he spoke to you of the upcoming Symposium on Lepton and Photon Interactions at High Energies, to be held at Stanford University August 21-27, 1975. This Symposium is the next in a series that has been held every two years, beginning in 1963, on the subject of electron and photon interactions. The last was held in Bonn, West Germany in 1973. This particular one will, I believe, have a heightened and broader interest because the subject matter has been expanded to include neutrino and muon interactions at high energies, as well as the results from the highest energy positron-electron storage rings now in operation at DESY and SLAC.

As Chairman of the Organizing Committee for this Symposium, I would like, through you, to extend a warm invitation for high energy physicists of the Peoples Republic to participate and would be most appreciative if you would serve as the person to select the delegates should such participation be possible to arrange. Although no numbers of delegates have as yet been officially allocated, we could accommodate at least ten.

We are trying to arrange our schedule so that official invitations to individual delegates can be issued by March 1975, and therefore would need to have your nominations by February 1975. I will send you further details, such as preliminary program, as they become available, and of course would be glad to answer any questions you may have.

We remember with pleasure your last visit to SLAC and both Dr. Panofsky and I would be pleased to see you and your colleagues again soon. I very much hope that it will be possible to arrange for a delegation from the Peoples Republic which I am sure will be beneficial to the international community of scientists as well as to our respective countries.

Sincerely yours,



Prof. J. Ballam
Chairman, The Organizing Committee



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

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S. D. Drell

F. J. Gilman

R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Professor N. Bogolyubov

J.I.N.R. (Dubna)

Head P.O. Box 79

Moscow, USSR

January 9, 1975

Dear Professor Bogolyubov:

Thank you for your letter nominating three delegates from Dubna to the Symposium.

Since we have set a quota for the Soviet Union of 25 delegates and 13 alternates, I have asked Professor Chuvilo to be responsible for the selection of the remaining 22 places. If you wish, you could send me the names of one or two alternates to the three persons you have already named in case for some as yet unknown reason one of them would be unable to come.

Again I wish to express my appreciation of your efforts on behalf of the Symposium.

Sincerely yours,

Professor J. Ballam
Chairman, Organizing Committee

bcc: V. Weiskopf ✓

Please address all correspondence to: Symposium Secretary
Stanford Linear Accelerator Center
P.O. Box 4349
Stanford, California 94305

SLAC Telephone
(415) 854-3300



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1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

ORGANIZING COMMITTEE

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J. Ballam

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S. M. Berman

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W. Chinowsky

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F. J. Gilman

R. Hofstadter

R. F. Mesley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Jan. 2, 1975

Professor V. F. Weiskoff
Department of Physics
Massachusetts Institute of Technology
Cambridge, Mass. 02139

Dear Viki:

Enclosed is a response from Bogolubov to my request that he, Chuvilo and Markov form a committee to select the Soviet delegates to the 1975 Lepton-Photon Symposium.

As you can see, he does not seem willing to be a part of any committee, but rather considers himself to be the head of an International Laboratory, somewhat independent from the rest of Soviet high energy physics. However, I consider it a good sign that he did respond, almost within the requested time, and did name some delegates.

I still have not heard from Chuvilo or Markov.

We have decided to give the Soviets a quota of 25--down somewhat from their previous quotas. This was based on their attendance at the Cornell and Bonn Symposia, which was 10 and 6, respectively. If we would augment this by the fractional increase in total delegates for this Symposium over the other two, this would come to 12 and 8. Thus the number 25 is at least a factor two times their previous attendance.

Regards,

J. Ballam, Chairman
Organizing Committee

JB:hm

cc: W.K.H. Panofsky

*cc: R. Nelson
E. Bloom*

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M. L. Perl

B. Richter

R. E. Taylor

January 2, 1975

Professor Chercan Tzitycica, Director
Institute of Atomic Physics
Calea Victoriei, 114
Bucharest 22, Rumania

Dear Professor Tzitycica:

Thank you for agreeing to take responsibility to select the Rumanian delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies to be held at Stanford University, August 21-27, 1975.

The Arrangements Subcommittee has decided that the quota for your region is 2 delegates, plus 2 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the 1st notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

Attached to this letter is a list of those people in your area who responded to the 1st notice. In some cases we have included copies of the original letters to the Symposium Secretary.

The Arrangements Subcommittee wishes to express its sincere appreciation for your efforts in their behalf.

Sincerely yours,

Professor J. Ballam
Chairman, Organizing Committee

Professor E. D. Bloom
Chairman, Arrangements Subcommittee

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W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

January 2, 1975

Professor M. Miecowicz
Institute of Nuclear Physics
al Michiewicza 30
Krakow, Poland

Dear Professor Miecowicz:

Thank you for agreeing to take responsibility to select the Polish delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies to be held at Stanford University, August 21-27, 1975.

The Arrangements Subcommittee has decided that the quota for your region is 2 delegates, plus 2 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the 1st notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

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Sincerely yours,

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M. L. Perl

B. Richter

R. E. Taylor

January 2, 1975

Professor N. Bogolyubov
J.I.N.R. (Dubna)
Head P.O. Box 79
Moscow, USSR

Dear Professor Bogolyubov:

Thank you for agreeing to take responsibility to select the Soviet delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies to be held at Stanford University, August 21-27, 1975.

The Arrangements Subcommittee has decided that the quota for your region is 25 delegates, plus 13 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the 1st notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

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M. L. Perl

B. Richter

R. E. Taylor

Professor A. Markov
USSR Academy of Sciences
Leninsky Prospekt 14
Moscow B-71, USSR

January 2, 1975

Dear Professor Markov:

Thank you for agreeing to take responsibility to select the Soviet delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies to be held at Stanford University, August 21-27, 1975.

The Arrangements Subcommittee has decided that the quota for your region is 25 delegates, plus 13 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the 1st notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

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M. L. Perl

B. Richter

R. E. Taylor

January 2, 1975

Professor I. Chuvilo
I.T.E.P.
Bolshaia Tscheremuschkinskaia 89
117259, Moscow V-259, USSR

Dear Professor Chuvilo:

Thank you for agreeing to take responsibility to select the Soviet delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies to be held at Stanford University, August 21-27, 1975.

The Arrangements Subcommittee has decided that the quota for your region is 25 delegates, plus 13 alternates. We would appreciate it if you could list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the 1st notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

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Sincerely yours,

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Chairman, Organizing Committee

Professor E. D. Bloom
Chairman, Arrangements Subcommittee

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B. Richter

R. E. Taylor

January 2, 1975

Professor I. Chuvilo
I.T.E.P.
Bolshaia Tscheremuschkinskaja 89
117259, Moscow V-259, USSR

Dear Professor Chuvilo:

I have heard from Professor Bogolyubov who has recommended three delegates from Dubna to the Symposium.

Since the quota for the Soviet delegation has been set at 25, I would very much appreciate it if you would take responsibility for selecting the remaining 22 delegates, plus 13 alternates. I would appreciate it if you would list the alternates in order of preference. The committee was influenced in its quota selection by attendance at the previous Cornell and Bonn Symposia, as well as by the response of individuals to the 1st notice. We need to know the names of prospective delegates by no later than Feb. 7, 1975, in order to be able to issue invitations in good time.

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Sincerely yours,

Professor J. Ballam
Chairman, Organizing Committee

JB:hm

Copy to: Professor A. Markov
USSR Academy of Sciences

1975 INTERNATIONAL SYMPOSIUM ON LEPTON AND PHOTON INTERACTIONS AT HIGH ENERGIES

QUOTAS

Regions	Cornell	Bonn	SLAC	1/3	1/3	1/3 Av.	Quotas	<i>at</i>
Africa & Mid East	0	0	0.9		0.3		3	3
Canada	2.5	3.2	13.4		6.4		6	3
CERN etc.	11.2	50.7	19.7		27.2		32	16
Far East	2.5	10.8	20.5		11.3		15	7
France	24.8	33.4	18.8		25.7		20	10
East Germany	1.2	1.1	0		0.8		2	2
West Germany	39.7	89.5	46.5		58.6		40	22
Hungary	0	0	0.9		0.3		24 ^{OK}	2
India	2.5	0	3.6		2.0		42	2
Israel	16.1	5.4	2.7		8.1		8	4
Italy	21.1	33.4	9.8		21.4		20	10
Mexico	1.2	1.1	2.7		1.7		2	1
Poland	1.2	2.2	1.8		1.7		2	2
Rumania	0	0	0.9		0.3		2	2
Czechoslovakia							2	
South America	0	1.1	7.1		2.7		4	
Sweden	1.2	2.2	2.7		2.0		2	2
USSR	12.4	8.6	0.9		7.3		25	13
U.S. E. & S.E.	105.5	33.4	86.7		75.2		70	38
U.S. Midwest	26.1	15.1	28.5		23.2		28	12
U.S. Southwest	13.7	9.7	20.5		14.6		15	8
U.S. Northwest	48.4	27.0	36.6		37.3		37	19
United Kingdom	28.6	32.3	34.8		31.9		29	15
Totals	359.9	360.2	360.0		360.0		370.0	193.0

December 18, 1974

Professor Chercan Tzitycica, Director
Institute of Atomic Physics
Calea Victoriei, 114
Bucharest 22, Rumania

Dear Professor Tzitycica:

As you probably know, the 1975 International Symposium of Lepton and Photon Interactions at High Energies will be held at Stanford University. The dates of the Symposium are August 21-27, 1975. Attendance will be by invitation only with a total of 430 physicists participating.

For this Symposium the subject will be enlarged to cover all high-energy lepton-induced reactions, including photoproduction, inelastic and elastic electron and muon scattering, colliding beams of electrons and positrons, neutrino- and antineutrino-induced reactions and leptonic final states in proton-proton collisions.

In order to insure that information about the Symposium is widely disseminated, we are distributing the enclosed notice to many institutions engaged in high energy physics. We are also placing announcements in the publications PHYSICS TODAY, MEETINGS ON ATOMIC ENERGY and EUROPHYSICS NEWS.

We would greatly appreciate it if you would be willing to take responsibility in the selection of the Rumanian delegates. As you can see, the enclosed notice suggests that any physicist who wishes to attend the Symposium inform us of his interest. As an aid to you, we will forward the names of all the Rumanian physicists who have responded to the Symposium announcement, and we ask you to take these people into consideration when you receive your allotment of invitees some time in January 1975. Of course, you will be free to recommend any list within the allotment, and we will abide by your choice.

We are looking forward to hosting our colleagues next year and hope our Symposium will be as successful as those in the recent past.

Sincerely,

Professor J. Ballam
Chairman, Organizing Committee

Professor E. D. Bloom
Chairman, Arrangements Subcommittee

Enclosure



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1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

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E. D. Bloom /

J. D. Bjorken
W. Chinowsky
S. D. Drell
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R. Hofstadter
R. F. Mozley
W. K. H. Panofsky
M. L. Perl
B. Richter
R. E. Taylor

Professor A. Markov
USSR Academy of Sciences
Leninsky Prospekt 14
Moscow B-71, USSR

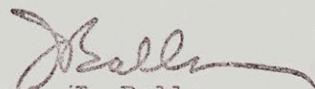
Dear Professor Markov:

On October 10 I wrote you asking if you and Professors Chuvilo and Bogolyubov would be willing to form a committee to select Soviet delegates to the Lepton-Photon Symposium and to please let me know your answer by Dec. 1, 1974.

To date I have had no reply from you - although I have heard from every one of twenty people from all over the world who have been asked to help in the delegate selection from their respective regions. I hope Soviet scientists are interested in attending this Symposium, especially in view of the recent new discoveries of high mass narrow resonances.

Please let me hear from you by January 10 (by cable if necessary) since we must assign quotas for various countries by January 15.

Sincerely yours,


Prof. J. Ballam
Chairman, Organizing Committee

JB:hm

bcc: R. Nelson ✓
E. Bloom
W.K.H. Panofsky



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1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

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B. Richter
R. E. Taylor

Professor I. Chuvilo

I.T.E.P.

Bolshaia Tscheremuschkinaia 89

117259, Moscow V-259, USSR

Dec. 16, 1974

Dear Professor Chuvilo:

On October 10 I wrote you asking if you and Professors Markov and Bogolyubov would be willing to form a committee to select Soviet delegates to the Lepton-Photon Symposium and to please let me know your answer by Dec. 1, 1974.

To date I have had no reply from you - although I have heard from every one of twenty people from all over the world who have been asked to help in the delegate selection from their respective regions. I hope Soviet scientists are interested in attending this Symposium, especially in view of the recent new discoveries of high mass narrow resonances.

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Sincerely yours,

Prof. J. Ballam
Chairman, Organizing Committee

JB:hm

bcc: R. Nelson ✓
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W. K. H. Panofsky
M. L. Perl
B. Richter
R. E. Taylor

Professor N. Bogolyubov
J.I.N.R. (Dubna)
Head P.O. Box 79
Moscow, USSR

Dear Professor Bogolyubov:

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Please let me hear from you by January 10 (by cable if necessary) since we must assign quotas for various countries by January 15.

Sincerely yours,

Prof. J. Ballam
Chairman, Organizing Committee

JB:hm

bcc: R. Nelson ✓
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W.K.H. Panofsky

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ОБЪЕДИНЕННЫЙ ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ

JOINT INSTITUTE FOR NUCLEAR RESEARCH

101000 Москва, Главный почтамт п/я 79.

101000 Moscow, USSR, Head Post Office, P.O. Box 79

Абонентский телеграф: 20-51-03

Telex MSK Dubna 7521

Tel. 226-22-29

№ _____

"8" December 19 74

Professor J. Ballam
Stanford Linear Accelerator Center
P.O. Box 4349
Stanford, California 94305
USA

Dear Professor Ballam,

Thank you for your letter concerning the 1975 International Symposium on Lepton and Photon Interactions at High Energies that is to be held at Stanford University on August 21-27, 1975.

As an International Research Center the Joint Institute for Nuclear Research would like to have Drs. P.S. Issaev, R.N. Faustov and E. Knapik participate in the above mentioned Symposium. As to the nominees from Soviet Institutes, I have sent copies of your letter to Professors M.A. Markov and I.V. Chuvilo and I hope they would be able to inform you in time about the Soviet delegation.

I would kindly like to ask you to have registration forms and any other available information about the Symposium sent to our Institute for Drs. P.S. Issaev, R.N. Faustov and E. Knapik.

Sincerely yours,

Professor N.N. Bogolubov

Director

Joint Institute for Nuclear Research

cc Ref

12/30



INSTYTUT BADAŃ JĄDROWYCH
ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ
INSTITUTE OF NUCLEAR RESEARCH
INSTITUT DE RECHERCHES NUCLÉAIRES
INSTITUT FÜR KERNFORSCHUNG

ADRES: I.B.J. 00-681 WARSZAWA 91 UXXXXXXXXXXXXX
POLSKA ul. Hoża 69

Zakład VII

TELEFON: 11-14-21-
- INFORMACJA
TELEX: 813244 IBJSW PL
TELEGRAF: IBEJOT
WARSZAWA

Symposium Secretary
Stanford Linear Accelerator Center
P.O. Box 4349
USA

Warsaw, November 29, 1974

Dear Sir,

I have learned from your First Notice about 1975 International Symposium on Lepton and Photon Interaction at High Energies; I would like to participate in it.

Looking forward to hear from you.

Sincerely yours,

Leszek Łukaszuk

12/11

November 22, 1974

Dear Sir:

I would like to take part in your 1975 International Symposium on Lepton and Photon Interactions at High Energies held August 21 - 27 at Stanford University, Stanford, California.

Fields of my interests are:

1) Elementary particles, scale invariance and high-energy processes.

2) Two-photon particle production (especially, in e^+e^- collisions).

Sincerely,

I. F. Ginzburg

I. F. Ginzburg

Department of Theoretical Physics
Institute for Mathematics
Siberian Division
USSR Academy of Sciences
Novosibirsk 630090, USSR.

*12/19 cc J. Ballin
Rif*



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1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

November 15, 1974

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R. E. Taylor

Professor K. Lanus
Institut fur Hochenergiephysik
Deutsche Akad. d. Wissensch
Platenanallee 6
Zeuthen/Berlin
German Democratic Republic

Dear Professor Lanus:

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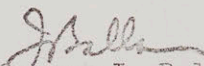
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We would greatly appreciate it if you would be willing to take responsibility in the selection of the German Democratic Republic delegates. As you can see, the enclosed notice suggests that any physicist who wishes to attend the Symposium inform us of his interest. As an aid to you, we will forward the names of all physicists of the German Democratic Republic who have responded to the Symposium announcement, and we ask you to take these people into consideration when you receive your allotment of invitees some time in January 1975. Of course, you will be free to recommend any list within the allotment, and we will abide by your choice.

We are looking forward to hosting our colleagues next year and hope our Symposium will be as successful as those in the recent past.

Sincerely,


Professor J. Ballam
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Professor E. D. Bloom
Chairman, Arrangements Subcommittee

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STANFORD UNIVERSITY

STANFORD LINEAR ACCELERATOR CENTER

Mail Address

SLAC, P. O. Box 4349
Stanford, California 94305

November 6, 1974

cc: N. Brand
D. Dupen
R. Hofstadter
W.K.H. Panofsky
R. Nelson
R. Shannon
S. Stamp
V. Weisskopf

Professor Chang Wen-Yu
Institute for High Energy Physics
Academy of Sciences
Peking
Peoples Republic of China

Dear Professor Chang:

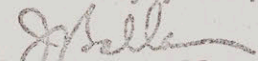
I understand from Professor R. R. Wilson that on his recent visit to the Peoples Republic he spoke to you of the upcoming Symposium on Lepton and Photon Interactions at High Energies, to be held at Stanford University August 21-27, 1975. This Symposium is the next in a series that has been held every two years, beginning in 1963, on the subject of electron and photon interactions. The last was held in Bonn, West Germany in 1973. This particular one will, I believe, have a heightened and broader interest because the subject matter has been expanded to include neutrino and muon interactions at high energies, as well as the results from the highest energy positron-electron storage rings now in operation at DESY and SLAC.

As Chairman of the Organizing Committee for this Symposium, I would like, through you, to extend a warm invitation for high energy physicists of the Peoples Republic to participate and would be most appreciative if you would serve as the person to select the delegates should such participation be possible to arrange. Although no numbers of delegates have as yet been officially allocated, we could accommodate at least ten.

We are trying to arrange our schedule so that official invitations to individual delegates can be issued by March 1975, and therefore would need to have your nominations by February 1975. I will send you further details, such as preliminary program, as they become available, and of course would be glad to answer any questions you may have.

We remember with pleasure your last visit to SLAC and both Dr. Panofsky and I would be pleased to see you and your colleagues again soon. I very much hope that it will be possible to arrange for a delegation from the Peoples Republic which I am sure will be beneficial to the international community of scientists as well as to our respective countries.

Sincerely yours,


Prof. J. Ballam

Chairman, The Organizing Committee



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

ORGANIZING COMMITTEE

Chairman:

J. Ballom

Program Chairman:

S. M. Berman

Arrangements Chairman:

E. D. Bloom

J. D. Bjorken

W. Chinowsky

S. D. Drell

F. J. Gilman

R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

A. L. Perl

B. Richter

R. E. Taylor

Nov. 5, 1974

Professor V. F. Weiskoff
Department of Physics
Massachusetts Institute of Technology
Cambridge, Mass. 02139

Dear Viki:

I understand that you are, or will shortly become, the contact person for the exchange of high energy physicists with the Soviet Union. Accordingly, I would like to keep you informed as to what I, as Chairman of the Organizing Committee for the 1975 Lepton-Photon Symposium, have done in this regard.

We have invited two younger Soviet theorists, V. A. Khose from Leningrad and A. M. Polyakov from Landau Institute to give one-hour review talks. In addition I have asked Bogolyubov, Chuvilo and Markov to act as a committee for the selection of Soviet delegates to the conference. I am attaching copies of all correspondence for your files.

In addition, I sent a copy of Bogolyubov's letter directly to him when he was at Rockefeller University during the month of October and asked Bram Pais to speak to him about these invitations. Bram did this and Bogolyubov, although noncommittal, did acknowledge early receipt of the letter.

I also sent an announcement of the conference to a large group of Soviet physics institutions, a copy of which is also enclosed. This is the same letter and the same announcement that we have sent to other institutions all around the world. I do not know what use the Soviets will make of these announcements and whether we should expect any individual responses at all, but we decided to treat the Soviet's like everyone else in the hopes that something good might come of it.

I would appreciate any comments or suggestions you might have as to future negotiations with the Soviets in connection with the Symposium. I would also like to know if you want to play a more active role in this particular negotiation, or is it sufficient

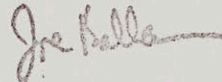
Please address all correspondence to: Symposium Secretary
Stanford Linear Accelerator Center
P. O. Box 4349
Stanford, California 94305

SLAC Telephone
(415) 854-3300

Professor V. F. Weiskoff
Nov. 5, 1974
Page 2

for you to be informed of the various steps along the way?

Best regards,



J. Ballam
Chairman, Organizing Committee

JB:hm
Encl.

bcc: Berman, Bloom, Nelson, Panofsky



INSTYTUT BADAŃ JĄDROWYCH
ИНСТИТУТ ЯДЕРНЫХ ИССЛЕДОВАНИЙ
INSTITUTE OF NUCLEAR RESEARCH
INSTITUT DE RECHERCHES NUCLÉAIRES
INSTITUT FÜR KERNFORSCHUNG

ADRES: XX
P O L S K A

TELEFON: 11431-
- INFORMACJA
TELEX: 818244 BISA PL
TELEGRAF: BEJOT
W A R S Z A W A

00-681 Warszawa, Hoza 69

October 30, 1974

Symposium Secretary
Stanford Linear Accelerator Center
P.O. Box 4349
Stanford, California 94305
U.S.A.

Dear Colleagues,

In connection with your First Notice announcing the 1975 Symposium on Lepton and Photon Interactions at Stanford. I just like to inform you that I am interested in attending the conference.

Sincerely

A. Jurewicz Ph.D.
Associate Professor

INSTITUTE OF NUCLEAR PHYSICS



Kraków 23 (Poland) ul. Radzikowskiego 152

Telephone: 302-29

Director 365-40

Telex: IEFJOT KR 032 461

Telegraphic address: IEFJOT Kraków

NXV-30/M/Y4

Kraków, 23.11.1974.

Prof. J. Ballam
Chairman, Organizing Committee

Prof. E.D. Bloom
Chairman, Arrangements Subcommittee

Dear Sirs,

Thank you for your letter of October 15, 1974.
I feel much honoured by your suggestion that I should take the responsibility in the selection of Polish delegates to the 1975 International Symposium on Lepton and Photon Interactions at High Energies which will be held at the Stanford University, and I hereby express my agreement to your proposal.

I am looking forward to the list of the names of Polish physicist willing to participate. They will be of course taken in consideration. According to my knowledge there are quite a few people in Poland interested in the subject. As you probably know, we have some difficulties in foreign currency and smaller in travel expenses. All there factors must be taken into account.

Wishing you good success in the Symposium to the benefit of High Energy Physics

I remain

Sincerely yours

M. Mięśowicz
Professor M. Mięśowicz

High Energy Physics Department

12/3
EB



DEPARTMENT OF PHYSICS
SANTA BARBARA, CALIFORNIA 93106

12 April 1974

Professor P.A. Cherenkov
P.N. Lebedev Physical Institute
Leninsky Prospect, 53
Moscow, USSR

Dear Professor Cherenkov:

Thank you for your letter of March 21, 1974 and the welcome news that two physicists from your laboratory can participate in our NAL experiment 25. I have given this information to the U.S. Atomic Energy Commission and NAL and have learned of the procedure to be followed in order to arrange this collaboration officially.

The first step is for me to obtain some information which I will then pass along to Dr. Goldwasser at NAL, who can then request approval from the USAEC for the stay at NAL of Dr. Belousov and Dr. Govorkov. The information needed is 1) brief biographical data about Dr. Belousov and Dr. Govorkov, 2) when they could arrive at NAL, 3) how long they can stay at NAL, and 4) whether the Academy of Sciences of the USSR will pay for their housing at NAL.

From our standpoint the sooner Dr. Belousov and Dr. Govorkov could arrive at NAL, the better. Construction of wire proportional chambers and much other work is going on there now, and they could be very helpful. Installation of equipment in the experimental area will start this summer and some beam testing will start this autumn. It is always difficult to know how long an experiment will take, especially with the complicated scheduling at NAL, but it would be nice if Belousov and Govorkov could stay at least through the summer of 1975.

Regarding lodging, it would be much simpler if the Academy of Sciences could pay for that at NAL, but if that is impossible, we can perhaps arrange to take care of it. NAL has apparently agreed to provide medical services.

I am very hopeful that we can make all the arrangements to carry out the Lebedev-UCSB collaboration. However, the necessary first step is for me to obtain the information mentioned above, so I hope to be hearing from someone at your laboratory soon.

Sincerely,

David O. Caldwell
David O. Caldwell
Professor of Physics

Telex

western union

Telex



PROFESSOR N BOSOLUBOV DIRECTOR JINR
 COL 4349 8
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 DUBNA HOSKOVSKOI URSS 61 15 1500
 PROFESSOR BALLAN ACCELERATOR CENTER POB 4349
 STANFORD CALIFORNIA/USA

2835

I HOPE YOU ZAVE RECEIVED MY LETTER OF
 DECEMBER 8 IN WHICH IT IS MENTIONED THAT NOMINEES FROM
 JINR TO PARTICIPATE IN SYMPOSIUM ON LEPTON AND PHOTON
 INTERACTIONS ARE DRS P ISSAEV N FAUSTOV AND E KNAPIK STOP
 KINDLY ASK YOU TO
 PG 2
 HAVE REGISTRATION FORMS SENT TO THEM

Telex

western union

Telex



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 PMS PROFESSOR BALLAN ACCELERATOR CENTER
 POB 4349
 STANFORD CA

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I HOPE YOU HAVE RECEIVED MY LETTER OF
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 COL 4349 8

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ZIP 02138

 Mailgram
western union



HARVARD UNIVERSITY KARL STRAUCH ATTN M RYKLE DEPT OF PHYSICS
LYMAN LABORATORY RM 238
CAMBRIDGE MA 02138

THIS MAILGRAM IS A CONFIRMATION COPY OF THE FOLLOWING MESSAGE:

INTL TDMT CAMBRIDGE MA 44/43 11-18 0522P EST
INT PROFESSOR I V CHUVILO DIRECTOR INSTITUTE OF THEORETICAL AND
EXPERIMENTAL PHYSICS
CHEREMUSHKINSKAYA UL 89
MOSCOW (SOVIET UNION)
OUR TELETYPE FOR EXPEDITING THE COLLABORATION IN FUNDAMENTAL
PROPERTIES OF MATTER IS READY OUR TWX NUMBER IS 7103200774 CODE
IS FUNDPROP CA BEST REGARDS
KARL STRAUCH ALTERNATE COORDINATOR

COL 89 7103200774 FUNDPROP CA

17:22 EST

MGMSNT HSB



Russians

Fermi National Accelerator Laboratory
P.O. Box 500 • Batavia, Illinois • 60510

Directors Office

April 18, 1975

Professor Victor F. Weisskopf
Physics Department
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Dear Viki:

I recently had occasion to review correspondence concerning one of our collaborative experiments with physicists from the USSR. I found a copy of the enclosed letter to I. Smolin, who had been a political negotiator, participating with Petrosyants and with the Soviet scientists during our various conversations.

The point of interest is the last paragraph of the letter which confirms the report that I made at the New Orleans conference. At that time, Chuvilo and Baldin expressed a certain degree of surprise and disbelief that permission for scientists' wives to work for pay had been denied by the Russian side. Although I have no answer in writing from Smolin, I think it is quite clear from the content of my letter that the facts were as I reported them.

Sincerely,

Ned

Edwin L. Goldwasser

Enclosure

cc: J. Teem with encl.

NATIONAL ACCELERATOR LABORATORY 

P.O. BOX 500
BATAVIA, ILLINOIS 60510
TELEPHONE 312 231-6600
DIRECTORS OFFICE

July 11, 1972

Dr. I. Smolin
State Committee on the Utilization
of Atomic Energy
Moscow
USSR

Dear Dr. Smolin:

First let me say how well the collaboration with the Nikitin group has been working out. They have assembled their equipment and set it into operation in a test area, and they are now in the process of installing it in the accelerator where it will finally be used.

We were very pleased that Drs. Mukhin, Kaftanov and Zakharov were able to come in June for the purpose of developing a proposal for a new collaboration on an experiment on an anti-neutrino bombardment of a neon-hydrogen mixture in our 15-foot bubble chamber. They arrived very well prepared, and although they caught our physicists at a very busy time, it was possible to work out a complete proposal in the few days that were available and to put it into the hands of the Program Advisory Committee prior to their meeting on July 3.

As you know, we had already received a proposal from an American group for a similar experiment subsequent to the initial submission of the letter of intent by the USSR-USA collaboration, but previous to the submission of their final proposal. We therefore had a serious problem to decide how best to proceed with the interesting physics experiment that is in question.

We believe we now have an appropriate solution which is described in the enclosed copy of the letter which Dr. Wilson has delivered today to Dr. Mukhin, who is currently acting as scientific spokesman for the experiment. For your information, I am also enclosing a copy of the companion letter which will be sent to the US group which has proposed to carry out the same physics experiment. You will see that we are committing ourselves to preferential treatment of the USSR-USA collaboration. We are certain that the confidence that we are placing in them and in their ability to turn out good work is well deserved.

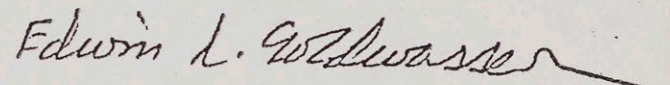
July 11, 1972

I trust that whatever details remain to be concluded with regard to the Annex to the Protocol which refers to this new experiment can be promptly resolved.

I should like to make two further comments to you in this letter. As we have previously suggested, the problem of transportation for members of the Nikitin group has become an increasingly serious one on and around the NAL site. It would have been far better for them to have used their available funds to purchase approximately three relatively reliable used cars than to spend all that money on a single, new Volkswagen microbus. As the Mukhin group begins to take up residence in the NAL area, it will be even more important that adequate transportation be provided. I would again suggest that if a sum of money is available, comparable to that which was used for the Kuznetsov-Nikitin group, serious consideration be given to the purchase of two or three used cars which could then even be shared between the two visiting groups.

One further matter concerns the morale of the wives of the first group of scientists who arrived on site. It is my understanding that in response to my request of you in Washington, permission has not been granted for these ladies to be employed, even if it were possible for us to make arrangements of that kind. I have not yet received a direct response from you to my question, so I hope that the indirect report that I have received may be in error. I do not yet know that there are useful jobs for which we could use any or all of these ladies in the coming months. But if there were, we would like to proceed to apply for the proper kinds of visas so that they could accept work if it became available.

Sincerely,



Edwin L. Goldwasser

Enclosures:

- Wilson to Mukhin, #180
- Wilson to Bingham, #172



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

Russians

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

ORGANIZING COMMITTEE

Chairman:

J. Ballam

Program Chairman:

S. M. Berman

Arrangements Chairman:

E. D. Bloom

J. D. Bjorken

W. Chinowsky

S. D. Drell

F. J. Gilman

R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Professor A. Markov
USSR Academy of Sciences
Leninsky Prospekt 14
Moscow B-71, USSR

April 16, 1975

Dear Professor Markov:

I have sent you several notices and reminders concerning the Soviet representation at the Lepton-Photon Symposium, but have had no reply as of this date.

Since we must make a final allocation of the delegates by May 15, I urge you to send me the names of the Soviet delegates immediately. If I do not hear from you by May 15, I will assume that you do not intend to use the 22 reservations and will reduce the allotment to 10 which I will keep in reserve until June 15.

Again, I hope that we will have an adequate representation of Soviet physicists at the Symposium.

Sincerely yours,

J. Ballam, Chairman
Organizing Committee

JB:hm

cc: I. Chuvilo
N. Bogolyubov

bcc: V. Weisskopf ✓
C. N. Yang
W.K.H. Panofsky
E. Bloom
S. Drell
R. Nelson

U.S.S.R.
Russia

UNIVERSITY OF WASHINGTON

SEATTLE, WASHINGTON 98195

September 19, 1975

Department of Physics, BJ-10

Dr. B. T. Dolomiets
Chairman of the Program Committee
c/o Dr. V. M. Lyubin
Secretary of the Organizing Committee
A. F. Ioffe
Physico-Technical Institute
194021 Leningrad
USSR

Dear Dr. Kolomiets:

It was disturbing to receive your letter of September 9th notifying me that our abstract was mailed too late to be included in the program and the book of abstracts. Our abstract was mailed on July 2 which was in advance of the time that we received the second notice of the Conference. As you may recall, the first notice of the Conference was sent out in the fall of last year when the Conference was to occur on its originally scheduled time in June. This first notice had set January 15 as the deadline for abstracts but had stated that a second notice would come out before that giving details for submitting abstracts. As you recall, no such second notice was sent out and the Conference was postponed from June to the present November 18-24.

As you can well understand this chain of events made me and my colleagues more cautious in sending in an abstract and making the necessary arrangements to attend until we had some assurance that the meeting would actually occur at all. When extracts from the second notice were sent to my colleague, we could find no statement of the deadline for receiving abstracts. We finally decided to send in our abstracts on July 2 as noted above. We felt safe that we were within any time deadline since none was mentioned in the extracts from the second notice and our abstract was submitted before receiving the 2nd notice.

When the second notice did finally come we noted that again there was no deadline mentioned for receipt of abstracts.

In view of these sequence of events, I most strongly protest the fact that our abstract was not included in the program and in the booklet of abstracts, at the very least as a post-deadline paper. It should be the responsibility of the program committee to try to compensate for the confusion and last minute changes that they had introduced. There should

Dr. B. T. Dolomiets
September 19, 1975
Page 2

be no question that our abstract which was submitted 4 1/2 months before the conference date should be included in the program. Once you accepted responsibility for holding the conference you must live up to the obligations of running the conference in a manner that is consistent with international scientific standards.

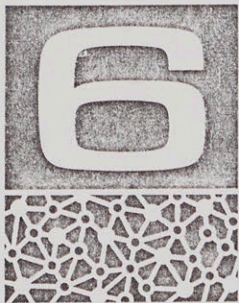
Sincerely yours,

Edward A. Stern

E. A. Stern
Professor of Physics

EAS/jm

cc: Kerwin
Fritzsche
Stuke
Weisskoff ✓
Sayers
Lytle
Crozier



SIXTH INTERNATIONAL CONFERENCE
ON AMORPHOUS AND LIQUID
SEMICONDUCTORS

Leningrad—USSR. November 18-24, 1975

September 9, 1975

Prof. E.A.Stern
Dept. of Physics, BJ-10
University of Washington
Seattle, Washington 98195
USA

Dear Prof. Stern,

We regret very much that your abstract was mailed too late to be included in the program and in the booklet of abstracts.

The methods and results of your paper seems to be very interesting and if attend the Conference and there is a free "hole" in the current schedule, the time may be allotted to you for oral presentation.

Enclosed please find the second notice of the Conference with the registration form.

Sincerely yours,

B.T.Kolomiets
Chairman of the
Program Committee

MEETING TO CONSIDER INTERNATIONAL CO-OPERATION IN THE
CONSTRUCTION AND OPERATION OF A HIGH-ENERGY ACCELERATOR

29 and 30 July, 1964

IAEA Headquarters, Vienna, Austria

MEETING TO CONSIDER INTERNATIONAL CO-OPERATION IN THE
CONSTRUCTION AND OPERATION OF A HIGH-ENERGY ACCELERATOR

29 and 30 July, 1964
IAEA Headquarters, Vienna, Austria

LIST OF PARTICIPANTS

The CERN Group

Dr. J.B. Adams
Professor E. Amaldi
Mr. J.H. Bannier
Professor W. Jentschke
Sir Harry Melville
Professor F. Perrin
Mr. F. de Rose
Professor V.F. Weisskopf

Advisers

Mr. R.St.J. Walker
Dr. A. Schoch

Observer

Professor W. Thirring

U.S.A.

Dr. J.P. Blewett, Brookhaven
Dr. L.J. Haworth, Director, National Science Foundation
Dr. W.K.H. Panofsky, Stanford
Dr. R. Rollefson, State Department
Dr. G.F. Tape, U.S.A.E.C. Commissioner for Research
Dr. R. Walker, California Institute of Technology

U.S.S.R.

Professor N.N. Bogolyubov, Dubna
Professor V.I. Veksler, Dubna.

- - - -

SUMMARY BY THE CHAIRMAN

I. Topics dealing with the construction of an Intercontinental Accelerator

Participants of the Meeting discussed the various aspects and arguments in favour of the construction of accelerators of much higher energy and intensity than the ones presently under construction and operation.

1. The discussions confirmed that:

(a) Accelerators of an energy considerably higher than 300 GeV would be so large and costly to build and exploit that it is reasonable to investigate the possibility of an intercontinental collaborative effort which would involve the three groups represented at the Meeting, and

(b) Construction of particle accelerators up to 300 GeV should not be considered as parts of such an intercontinental effort among the three groups.

2. It was noted that many non-technical problems must be resolved before an intercontinental accelerator programme could be established. It is hoped that a future meeting can address itself to methods of dealing with these questions as well as to the necessary scientific and technical matters.

3. The scientific, technical, organizational and financial problems involved are of such magnitude that, should a decision be reached to construct such an accelerator, it could not be expected to be in operation before twelve to fifteen years.

4. It was agreed to invite the Director-General of the IAEA to maintain contact with each group with a view of calling a further meeting of the present group at the appropriate time.

II. Other forms of collaboration

5. It was agreed that world-wide collaboration among the different centres of high-energy physics should be expanded. In particular the exchange of scientists should be continued on a larger scale and should also include groups of accelerator experts.

6. Furthermore, the participants agreed to approach IUPAP and the Governments concerned with the request to encourage the participation of experimental teams from other countries in the work at accelerator laboratories. Such participation would be useful in particular in connection with the most powerful accelerators in operation or under construction. It was considered useful for such participation to include the use of equipment brought by the visiting teams.

- - - -

Vienna
meeting

24 August 1964

Distribution to:
PARTICIPANTS ONLY

UNOFFICIAL RECORD OF THE
MEETING TO CONSIDER INTERNATIONAL CO-OPERATION IN THE
CONSTRUCTION AND OPERATION OF A HIGH ENERGY ACCELERATOR

Held at IAEA Headquarters, Vienna, Austria,
on 29 and 30 July 1964

Present

Representatives of the CERN Group:

Dr. J.B. ADAMS	Prof. F. PERRIN
Prof. E. AMALDI	Mr. F. de ROSE
Dr. H.H. BANNIER	Prof. V.F. WEISSKOPF
Prof. W. JENTSCHKE	Dr. K. SCHOCH
Sir Harry MELVILLE	

Representatives from the USA:

Dr. J.P. BLEWETT	Dr. R. ROLLEFSON
Dr. L.J. HAWORTH	Dr. H.L. WALKER
Dr. W.K.H. PANOFSKY	Dr. G.F. TAPE

Representatives from the USSR:

Prof. N.N. BOGOLYUBOV	Prof. V.I. WEKSLER
-----------------------	--------------------

From the IAEA:

Dr. S. EKLUND	Dr. H. SELIGMAN
Dr. G.R. KEEPIN	

OPENING OF THE MEETING BY THE DIRECTOR GENERAL OF THE IAEA

Mr. Eklund, Director General of the IAEA, welcomed representatives to what would clearly be a most important discussion, in view of the enormous potentialities of high-energy accelerators. The Agency's position in the matter was akin to that played by UNESCO in the establishment of CERN. It was glad to place its facilities at the participants' disposal and would be glad to offer any continuing service required as a result of the Meeting.

He recalled that the first initiative on his had been taken at the seventh regular session of the General Conference, when he had taken advantage of the presence of leading scientists from the Soviet Union, the United States and Western Europe to have informal discussions on the desirability of a meeting to consider international co-operation in the construction and operation of a high-energy accelerator. It had taken rather longer to arrange the present Meeting than had at first been anticipated, and further informal discussions had been necessary. As a result of those discussions he and Mr. Weisskopf, Director General of CERN, had drawn up the following proposed agenda:

1. Review of the scientific and technical justifications for the construction of a very large particle accelerator.
2. Examination of the factors determining the time-table of planning and construction
 - (a) Technical factors
 - (b) Administrative factors
 - (c) Political factors
3. Study of necessary immediate steps to be taken towards realization of the project.
4. Other forms of improving international collaboration in high-energy physics.

It was not difficult to think of other questions which would have to be resolved before any such accelerator was built (e.g. cost and design), but it seemed that those could be left to a subsequent stage. For the present

the Agency assumed that the presence of participants from the three nations or regions concerned betokened their willingness to co-operate in the field of high-energy physics. The present Meeting afforded an opportunity for them to discuss the scientific and also, he hoped, to some extent, the administrative aspects of the question. In his view, the minimum achievement the Meeting should aim at was the establishment of machinery for continuing co-operation in high-energy physics. He regretted that owing to his involvement with the preparations for the Geneva Conference, he would be unable to attend all the discussions, but Mr. Seligman, Deputy Director General for Research and Isotopes, and Mr. Keepin, Chief of the Research Division's Physics Section, would be available and would keep him informed of the outcome.

He understood it was generally agreed that Mr. Weisskopf should act as Chairman.

Mr. Weisskopf took the Chair.

The CHAIRMAN thanked participants for the confidence placed in him and expressed their gratitude to the Director General of the Agency for his initiative in arranging and convening the Meeting and for the preparations he had made to give it every chance of success. He thought that this aim would be best served by keeping the discussions as informal as possible.

ADOPTION OF THE AGENDA

Mr. BOGOLYUBOV proposed the deletion of items 2(b) and (c), which he and Mr. Weksler had no credentials to discuss.

Mr. TAPE said that he appreciated the difficult position in which the USSR representatives found themselves. On the other hand it was clear to him that even when examining the technical factors, the Meeting would be bound to touch on some at least of the administrative factors. While he had no objection to deleting items 2(b) and (c) from the agenda, he hoped that, bearing in mind what the Chairman had said regarding the informal nature of the discussions, participants would feel free to discuss administrative and political factors to the extent they felt able to do so.

Mr. WEKSLER agreed that while the Meeting should feel free to exchange views over the whole range of problems involved, specific mention of administrative and political factors should be deleted from the agenda.

The CHAIRMAN, pointing out that items 2 and 3 would in any case be bound to overlap in practice, asked whether it was agreed that items 2(b) and (c) should be deleted, on the understanding that participants should feel free to comment and, if they so wished, put questions regarding the administrative and political factors to whatever extent they felt able to do so.

It was so agreed.

REVIEW OF THE SCIENTIFIC AND TECHNICAL JUSTIFICATIONS FOR THE CONSTRUCTION OF A VERY LARGE PARTICLE ACCELERATOR (Item 1 of the Agenda)

The CHAIRMAN, stressing that he was giving only his personal views, said that the past three or four years had highlighted what might be termed the "third spectroscopy". It had been found that strongly interacting particles had a structure which was in many points markedly reminiscent of the atom and the nucleus. For example, scientists had found that such particles had excited states, baryons becoming hyperons or excited resonances. The difference was that, if one discounted what seemed to him the rather optimistic prognoses of men like Chew, there was not yet even an approximate dynamic theory to explain the "spectroscopic" phenomena found at the level of these recently discovered particles. It was the task of physicists to explore the reasons for the spectroscopic structure, which was of course of fundamental importance. A start had been made. The SU₃ results had revealed regularities which could be traced to certain groups; and these regularities, the first of any kind to be found in the new world of sub-nuclear physics, had led to prediction of the omega particle. On the other hand finding a regularity was a far cry from discovering an explanation. In any case, preliminary study of the regularities which had been found suggested that the system of baryons, mesons, anti-baryons, etc., was a composite system, itself resting on a still simpler world. The hypothesis had even been advanced that the baryon consisted of three component particles. In his own view, that would probably turn out to be an over-simplification, but the fact that such a hypothesis could be advanced showed that physicists had reached the point where further investigation of the riddle presented by the sub-nuclear particles was imperative.

It was clear that the problem could not be solved with the present machines and that the key to them lay in using higher energies. There was

still no evidence as to whether the predicated particles below the level of baryons were long- or short-lived; the answer to that question would clearly affect the type of machine that would be needed in order to discover them. Leaving questions of type aside, however, it was indubitable that higher energies would be required if their existence was to be demonstrated.

Another purpose for which very high energy accelerators were required was the study of weak interactions (as distinct from electromagnetic, nuclear and gravimetric interactions), regarding which very little was still known. Attempts to demonstrate the existence of what was called the "intermediate boson", which was thought to be the vehicle for such interactions, had yielded no success with the present machines. More powerful machines should reveal whether the explanation for such reactions was to be sought in terms of the intermediate boson or not - although it was true that for that purpose it might be sufficient to go to 300 GeV, rather than 1000 GeV which would probably be required to examine baryons, etc.

High energy physics was sometimes regarded as in the nature of abstruse theorizing, utterly remote from other disciplines and with no bearing whatever on the everyday world. As a spearhead of science it was perhaps inevitable that it should give that impression, but the recent discovery of very high-energy explosions in galactic systems showed that in examining interactions at the baryon and sub-baryon levels physicists were not dealing with something which played no part in the real world of experience, as it seemed very likely that the explosions in question were of roughly the same energy range as those which were now being regarded as necessary in order to separate the supposed constituents of particles of the baryon type. By the use of fission reactors and to an even greater extent by the use of fusion devices, provided such use became feasible, mankind was already transporting extra-territorial conditions to earth. So the fact that such energies as the Meeting was at present considering were not encountered on earth was no argument against pressing on with such research. Indeed, he feared that if mankind was unwilling to spare the necessary resources for further research into the fundamentals of matter, it would - to view science as an inverted pyramid - lop off the base with the result that the remainder would wither away. Other scientific fields were naturally entitled to their fair share of the available resources as well, but in his view it was not unreasonable to

ask that ten per cent of the total amount devoted to scientific research should be assigned to high-energy physics; and that would be approximately what would be required if an accelerator of the order of magnitude at present under consideration were constructed, without at the same time prejudicing other work in hand. The present juncture was in his view crucial because progress in high-energy physics occurred in big quantum jumps, rather than in a steady curve, and if the present opportunity were lost it might be many years before a similar opportunity occurred again. Whatever the outcome of the present Meeting, he thought all those present should ask themselves whether they were not in danger of letting the case against construction of a very high-energy accelerator go by default, through not insisting sufficiently on the need for one.

Mr. PANOFSKY said he would like to mention a few specific points in addition to the more general points already referred to by the Chairman with a view to clarifying the approximate energy region in terms of which the Meeting should be thinking. It was important to do so because neither physicists nor experimentalists nor accelerator constructors had any longer any very clear ideas regarding the probable energy range of the next generation of machines, still less of the generation after that. To judge from past experience, the choice of parameters for future accelerators should be approached with humility, as most previous accelerators had been built for the wrong reasons in relation to the main results obtained from them. In other words, parameters had been chosen with a view to following up particular lines of research, whereas in practice, by the time the accelerators had been built, other lines had proved more rewarding. Whatever parameters were now selected for the proposed accelerator, the choice would in all probability turn out to be only partially correct, in the light of hindsight.

One point which should be borne in mind was that a higher-energy machine meant a higher-intensity machine, which would of course present increasing difficulties as regards shielding etc. the higher the intensity to which one went.

One argument in favour of a very high-energy machine constructed on an intercontinental basis was that the secondary or external beams produced on such a machine could be used to develop independent target areas of which it might be difficult to make full use unless they were used by teams from more than one country or region. The Meeting should not think only

in terms of construction cost but should also bear in mind operating costs, which over a period of years could easily equal the initial construction cost. Maximum utilization of the machine was therefore essential.

In order to explore the electro-magnetic structure of unstable particles it would be desirable to go up to 1000 GeV in order to get appreciably increased momentum transfer in the centre of mass.

Another reason for going to at least 700 GeV was that recent calculations made in regard to the baryon octet and the meson octet had, surprisingly, given very accurate fits for the mass intervals, which suggested, as the Chairman had already said, that those particles were in fact composite forms of particles of much heavier mass.

Machines of approximately that energy range might also be expected to confirm or refute the validity of the present models accepted in high-energy physics.

On the administrative side, it would undoubtedly take more time to get an intercontinental project off the ground, and that also was an argument for aiming at a range well beyond that of the present generation of machines.

Mr. PERRIN agreed with Mr. Panofsky that it was very difficult to determine what was the best energy range for the proposed intercontinental machine. His arguments seemed, however, to point to the conclusion that the higher the energy the better.

Mr. ADAMS said that good arguments had been advanced for a high-energy machine with an energy range approximately one order of magnitude higher than the present machines. From the technical point of view he was fairly confident that it was possible to build a 300 GeV machine; he had not the same degree of confidence about a 1000 GeV machine - it might be possible, but that seemed to be about the limit to which one could aspire at present.

With regard to the Chairman's remarks, he did not think that any of the Governments represented at the Meeting wished to halt research in high-energy physics; the only question was at what rate to continue. The time-scale was indeed the crucial problem. If a start could be made on the next generation of national or regional accelerators in two or three years' time, they should be completed by the early '70s. It was

difficult to see how a start could be made on a 1000 GeV machine until the 300 GeV machines were in operation. If the same kind of time-scale held good, that would mean that the 1000 GeV machine would not come into operation until the '80s. He doubted whether it was really feasible to enter into commitments for so long ahead. It therefore seemed to him that if intercontinental co-operation in the construction of a high-energy accelerator were considered desirable and feasible, it would be necessary to reconsider the present tentative plans for constructing 300 GeV machines nationally or regionally and establish intercontinental co-operation already for that stage.

Mr. WEKSLER said that physicists at least were very interested in the possibilities that would be afforded by a 1000 GeV machine. There were however serious difficulties. In the first place the machines already available were still of comparatively recent date and were still yielding new information. Secondly, it would, he thought, take at least 10-15 years to solve all the administrative and financial problems connected with construction of a 1000 GeV machine. Reference had already been made to the question of operating costs. Experience at Dubna had shown that the total operating costs for a period of five years amounted to double the initial construction cost. Lastly, he was sure that within the 10-15 years which would be needed before such a machine was built, scientific and technical advances would be made which might render the machine obsolete before it was ever completed.

The CHAIRMAN said, with regard to Mr. Adams' remarks, that the High Energy Committee of IUPAP had agreed a year previously that construction of accelerators up to 300 GeV should be regarded as regional or national projects and more powerful accelerators as intercontinental projects. There was no reason however why the present Meeting should not review that decision and amend it if it thought fit.

Mr. AMALDI said that one reason for establishing the dividing line at 300 GeV had been that it had been felt that that was the upper limit of accelerators built according to present techniques. More powerful machines would not be just the existing machines on a larger scale, but something basically different.

He thought it was clear that sooner or later it would become unreasonable, and would absorb a disproportionate amount of national or

regional resources, both absolutely and relative to other fields, to continue with separate projects; sooner or later intercontinental co-operation would become a necessity. The only question was whether such co-operation should begin at the 300 GeV level or higher. One argument for going to the 1000 GeV level was the time-scale: owing to differences in organization and administration, an intercontinental project would, as had been said, take probably twice as long to get going as a national or regional project. If it was decided to build a 300 GeV machine as an intercontinental project, it would probably not come into operation before the late '70s. Built regionally or nationally, such machines should be ready by the early '70s, by which time high-energy physicists would already be very impatient to use them. The conclusion was that the countries and regions concerned should go ahead with their projects for 300 GeV machines and should be prepared to take the next step together; but if they were to do so, that meant that they must already now begin preparing the ground.

It was not a question of design or even the precise energy level: those matters need not be decided for some time and even after they had been decided changes could be made if technological improvements made them necessary. If it was hoped that scientific or technological processes would make it possible to obtain the desired results without having recourse to such expensive machines, he could only say that experience made him skeptical. What always happened in such circumstances was not that the cost was reduced but that advantage of the improved efficiency was taken in order to increase the power.

Mr. BLEWETT said that many people, in the United States at least, would not agree that the present techniques could not be extrapolated to machines of 1000 GeV or more. The group working on long-term projects at Brookhaven had agreed that it would be unrealistic to think in terms of a start being made on a 650 GeV machine for at least five years; that being so, it had been agreed that consideration should be given to fundamental questions of design. In other words, the improvements referred to by Mr. Weksler would not be found unless those concerned looked for them.

Mr. ADAMS said there was undoubtedly a good case for building a machine in the range between 200 - 300 GeV and approximately 1000 GeV. On the other hand he was not entirely sure that there was justification for several machines in that range.

He agreed with Mr. Panofsky that technological improvements were not likely to lead to a reduction in construction costs. For example, the alternating gradient had represented a great breakthrough, yet Berkeley had cost as much as CERN.

Mr. WALKER said that particle physicists in the United States were already impatient for a 200 GeV machine and preliminary planning for such a machine was already underway. Yet there would be a gap of at least 13 years between the Brookhaven and CERN machines and the proposed 200 GeV machine. An intercontinental project for construction of a larger machine would entail altogether unacceptable delay unless a start were made at once on the preliminary co-ordination and co-operation that would be required.

Mr. TAPE pointed out, in reply to the suggestion that an intercontinental project would be inefficient as compared with a national or regional project, that it was sometimes necessary to put up with less than optimum efficiency if that was the only way of getting something done. Most if not all participants agreed that there were good reasons for constructing a 200-300 GeV machine, and in his view it lay within the capacity of the three nations or regions represented to do so, both as regards cost and as regards scientific manpower. With regard to a still larger machine, it might well be that the United States, for instance, would like to build such a machine on its own but he was by no means certain that it would feel justified in doing so, in view of the other demands on its financial and physical resources.

Mr. BOGOLYUBOV said that even if it were agreed in principle to build a very powerful machine on an intercontinental basis, no real progress could be made, with regard to design, cost estimates or anything else, until the theoreticians had indicated precisely what type of problems they wished the machine to help them to solve.

Mr. WALKER said that as Mr. Panofsky had already observed, such a point of view was quite unrealistic in the light of experience. He emphasized that very high-energy physics was still in the exploratory stage, and even in the past, when the ground had been better mapped, accelerators had often proved most productive in quite unexpected directions.

Mr. PANOFSKY said that in his view Mr. Adams was right in saying that the crucial question was the time scale. There were many examples in the history of science to show that unless impetus were maintained in a particular field, and a fairly rapid rate of progress, stagnation set in: it was not the nature of science to progress slowly and steadily, but by bursts. There were also many cases where science had been put on the wrong tack by relying exclusively on one unchecked set of results; in other words, to answer Mr. Adams' question, it might well be desirable to have two or three laboratories at the 200 - 300 GeV level, for purposes of cross-checking.

Of course no-one knew what the future held in the way of technological improvements, but he thought those at present represented had agreed at Dubna that there was nothing in prospect at the present time - including super-conductors - which was likely to lead to sensational developments in accelerator design, at least as far as circular accelerators were concerned.

Mr. HAYWORTH said that even if participants maintained their previous view that the dividing line between regional/national and inter-continental projects should be set at 300 GeV it was essential, in view of the difficulties which all had stressed, to begin thinking seriously at once about the >300 GeV stage, not in terms of design, for the very good reasons given by Mr. Weksler and Mr. Amaldi, but in terms of the machinery that would be required to put such a project into effect. In his view the aim of the present Meeting should be to make arrangements to begin continuous planning, administrative and diplomatic, to prepare for the next generation machine, whether it was to be of 1000 GeV or more, whether of the strong-focussing type or some other type still to be developed, in order that the three countries or regions concerned should be jointly in a position to take prompt action when the moment came, in the same way as the Council of CERN had, as a result of its preliminary studies, been in a position to take prompt action once the development of the strong-focussing technique made construction of a much larger machine feasible.

The CHAIRMAN said it seemed then to be generally agreed that what the Meeting was talking about was not the next generation of machines to be built but the second generation.

Mr. ADAMS said that to repeat his previous remark in a slightly different form, that presumably meant that participants felt there was some justification not only for two or three machines at the 200 - 300 GeV level, but for a further machine whose power rating would be only three times higher, i.e. $\sqrt{3}$ in the centre of mass.

Mr. AMALDI said that the second-generation machine would not necessarily be limited to 1000 GeV if technological developments made it possible to go higher. All the Meeting was being asked to agree to was that the second-generation machine should be intercontinental.

Mr. WEKSLER agreed with other speakers that there was no justification for revising the decision that had been taken within the framework of IUPAP, though the matter had not been specifically considered in the Soviet Union. As other participants were aware the Soviet Union was going ahead with its plans to construct a 70 GeV machine, which was of the same order of magnitude as the 200 - 300 GeV machines that were being discussed.

Mr. TAPE, agreeing with Mr. Amaldi, said that the agreement which his delegation was seeking was in fact that, if a significant further step could be made beyond the 200 - 300 GeV machines, that step should be in the nature of an intercontinental project. It was of course difficult to give a categorical undertaking in that respect, seeing that construction of such a machine lay many years ahead. He hoped, however, that the presence of the three delegations in Vienna to discuss the matter betokened their belief that if such a machine was built, intercontinental collaboration would be, to put it no higher, an appropriate means of doing so. And he thought it was clear from all that had been said that the three delegations agreed that such a machine, of one kind or another, would sooner or later be built. The scientific advisor to President Johnson had gone on record to the effect that the United States would like to continue exploring the possibilities of intercontinental collaboration in such a project. If intercontinental collaboration ran into seemingly insuperable obstacles, the United States might decide to go ahead on its own, though in his (Mr. Tape's) view a national project on that scale would in fact take longer rather than shorter to implement, owing to the immense resources required.

Mr. BANNIER said that as a member of the Council of CERN, though not of course speaking on its behalf or on behalf of any other Governments

represented on it, he felt that if construction of a >300 GeV machine was to be undertaken, it should, and indeed could only, be by an intercontinental effort. As had been pointed out, it was only the time scale which made international collaboration on a 300 GeV machine impractical.

Mr. WEKSLER said he fully shared Mr. Tape's view that the most appropriate way of constructing a very high-energy accelerator would be by international collaboration, although he thought the Meeting should avoid any statement which might appear to preclude Governments from building accelerators of whatever type or size they wished.

The CHAIRMAN agreed that the Meeting had not the power to say that if such a machine were built, it should only be by the joint efforts of the three nations or regions represented. On the other hand, there seemed no reason why it should not say that if such a machine were to be built, it would probably be by the joint efforts of the three countries or regions represented.

Mr. WEKSLER repeated that he personally was convinced that when the time came, when all the conditions for building such a machine were fulfilled, then the most appropriate way of building it would be on an intercontinental basis.

The CHAIRMAN said that in those circumstances, seeing that the views expressed by Mr. Tape and Mr. Weksler were so close, it would not be sufficient simply to agree to meet again once need arose. The Meeting should also consider what steps should be taken immediately in order that no time need be lost once the conditions for actually beginning work on such a project were fulfilled. In other words, the Meeting, having exhausted item 1 of its agenda, and, by implication, also item 2, would now pass on to item 3.

STUDY OF NECESSARY IMMEDIATE STEPS TO BE TAKEN TOWARDS REALIZATION
OF THE PROJECT (Item 3 of the Agenda)

Mr. HAYWORTH proposed that participants should agree to recommend to their respective Governments to consider setting up an official intercontinental body to undertake study of all the complex administrative and diplomatic questions that would have to be solved before any firm plans for construction of a very high-energy accelerator on an intercontinental basis could be drawn up; and in due course to make recommendations as to how those problems could best be tackled on an intercontinental basis. Although the study group or commission he had in mind would of course have technical advisers, it would not be expected to consider questions of design, etc., but, principally, what type of organizational machinery, and what type of international agreements, would eventually be needed for such a project. Its recommendations on those points might or might not take the form of a draft treaty or draft articles of agreement.

Mr. FERRIN feared that if such a commission were established at the present time it would not have a solid basis on which to work. In his view intercontinental collaboration in the field of very high energy physics should initially take the form of scientific collaboration. Once the scientists concerned had been working more closely together for two or three years a commission of the type proposed by Mr. Hayworth would have much more chance of achieving useful results.

Mr. WEKSLER said he could only agree with Mr. Ferrin that it would be very strange for a meeting composed primarily of scientists to come out with proposals for purely administrative machinery, while confessing themselves still unable to come to any decision regarding such scientific matters as the precise purpose of the machine, its energy level, type, design, etc. He fully understood his United States colleagues' impatience and their desire to make a start, but it was sometimes better to hasten slowly. He recalled that IUPAP had agreed that discussion would be needed on the scientific aspects of the problem, but as far as he knew no results had yet been achieved.

Sir HARRY MELVILLE said that he agreed in general with Mr. Hayworth. Intercontinental collaboration between scientists regarding the use to be made of existing and planned machines, their limitations and the next steps, was a separate matter, and he saw no reason why progress should not be made on both fronts simultaneously.

Mr. HAYWORTH fully agreed with the last speaker. It had naturally not been his intention to suggest that all scientific investigations should halt until such time as consideration of the administrative aspects was completed.

Mr. PANOFSKY felt however that the dominant element must be the political and fiscal, as that would determine the time-scale, which would itself determine for example the type and energy level of the proposed machine. For the reasons he had already indicated, scientists' views on these matters were not so clear-cut as one might expect.

Mr. FERRIN thought it was not so much a question of determining the type of machine and energy level as of establishing much closer liaison between scientists in the three countries or regions than at present existed - by way of exchanges, joint discussions, etc.

Mr. BOCOLYUBOV said that in his view too the increased exchange of information and an intensified programme of exchange visits between scientists from the countries and regions concerned would be a much more fruitful basis for further action.

Mr. WEKSLER said there was no reason why, in such increased information exchanges and intensified visits, more attention should not be paid to accelerators than in the past. As things stood at present, the Soviet authorities were not convinced of the need for a 1000 GeV machine, and it would therefore represent a real step forward if the scientific justification for such a project, and the form it should take, were to receive more attention than they had done so far.

Mr. AMALDI thought it might be desirable to have machinery to study both the scientific and administrative aspects of the problem, as well as promoting closer contact between those at present engaged in the work on high-energy physics. Owing to the fluid nature of the whole subject, it was essential that such machinery should be highly flexible, particularly as far as study of the scientific aspects was concerned.

The CHAIRMAN pointed out that there were at least three study groups already considering the scientific aspects of a very high-energy machine, in CERN, in the United States and in the Soviet Union. On the other hand the administrative problems, despite the fact that they loomed large in everyone's mind, had not been considered, even in outline. As he saw it, it would be highly desirable at least to try to explore these problems to the point where it was possible to determine which of them would really give rise to serious difficulty and which were more apparent than real. He had some sympathy for the viewpoint that once the need for such a machine was clearly recognized, the organizational problems would be rapidly solved. That might well happen, but it seemed prudent at least to take into account the possibility that it might not.

Mr. WEKSLER said that Mr. Bogolyubov and he agreed it might be premature and even harmful to establish a commission of the type proposed, as long as the conditions for beginning work on a very high-energy accelerator were not fulfilled.

Mr. AMALDI accordingly asked Mr. Weksler and Mr. Bogolyubov what proposals they had for further promoting the purposes for which participants had assembled for the present Meeting.

Mr. WEKSLER said he thought the answer to that question was to be sought within the framework of agenda item 4.

The CHAIRMAN agreed that in the circumstances the Meeting should go on to item 4 and pointed out that work of the type envisaged under that heading could be expected to help to keep the idea of international collaboration in construction of a very large accelerator alive.

OTHER FORMS OF IMPROVING INTERNATIONAL COLLABORATION IN HIGH-ENERGY PHYSICS
(Item 4 of the Agenda)

The CHAIRMAN recalled that at Dubna a year previously he had tried to sum up the other ways in which international collaboration in high-energy physics could be improved. Progress had been made in some of those directions, but he thought all present would agree that more could and should be done.

Good progress had been made in particular in regard to the organization of conferences and the exchange of preprints, etc., and he hoped that the conference that was about to be held in Dubna would mark further progress along those lines.

As regards the exchange of individual scientists, CERN for its part was very happy with the results achieved under the arrangements for exchanging scientists between Western Europe and the Soviet Union. He welcomed the fact that the administrative and other obstacles to similar arrangements between the Soviet Union and the United States had now been overcome, or were on the point of being overcome, and it was to be hoped that the exchanges made possible between the two countries as a result would prove equally fruitful.

The third point to which he had referred in Dubna was the exchange not of individuals but of teams. It was already the case that there was only one machine in the world of a particular kind or with a particular energy level. At present, for example, the largest machines in the world were at CERN and Brookhaven, and CERN would be delighted if the Soviet Union sent a team of scientists to work at CERN - naturally in close conjunction with the CERN staff - on problems which they had not at present the facilities to study in the Soviet Union. In the same way Western European scientists would hope that when the Serpukhov accelerator was available it would be possible for them to send teams to the Soviet Union to study problems which they at that time had not the facilities to study in Western Europe.

Finally, he had referred to the exchange of information on research projects with a view to avoiding duplication. There had, however, been some feeling that research should not be organized to that extent but should be left to develop freely.

Mr. WEKSLER said that in view of the purpose of the present Meeting the discussion should perhaps be confined to questions of the exchange of individuals, and, subsequently, of groups working on high-energy physics, and more especially accelerators. As had been said, duplication provided a check, but even so he felt it would be desirable to co-ordinate the various countries' or regions' programmes for studying the scientific aspects of a very high-energy accelerator project. In his view the High-Energy Committee of IUPAP afforded satisfactory machinery for the co-ordination of such work, which was, he emphasized, the necessary preliminary to future collaboration in the construction of a very high-energy accelerator, as it alone could provide realistic data on questions of design and cost.

Mr. TAPE agreed with Mr. Weksler that machinery was already available for many of the forms of collaboration referred to by the Chairman. In his view the exchange of individuals and subsequently groups were matters which should be left primarily to the initiative of the individual laboratories, although they too gave rise to administrative difficulties which necessitated Government action, so that participants at the present Meeting could undoubtedly assist by urging on their Governments the desirability of such exchanges.

Mr. AMALDI said that while he appreciated the importance and desirability of developing all the forms of collaboration referred to by the Chairman, he was afraid they did not touch the heart of the problem.

Mr. PANOFSKY said there was no reason why arrangements should not be made under the present Soviet-United States agreement for exchanges of groups of individual scientists, each specializing in a different sector of the high-energy field. He thought, however, that that was something rather different to the team exchanges which the Chairman had in mind.

The CHAIRMAN, agreeing, said that he, for instance, as Director General of CERN, deplored the fact that no requests had been received from Soviet scientists for CERN to undertake experiments which could at present only be undertaken, in Europe, with equipment available at CERN. Apart from merely asking that such experiments be carried out, however, there was no reason why the Soviet Union, to continue that example, should not ask if it could send a spark chamber with the necessary personnel to Geneva in order to carry out experiments on the CERN machine but using Soviet spark chamber equipment and personnel. Reciprocal arrangements should prove equally valuable once the Serpukhov machine was operating.

Mr. TAPE said that the possibilities outlined by the Chairman were undoubtedly extremely interesting from the theoretical physicists' point of view.

Mr. BCGOLYUBOV said that once the Serpukhov machine was operating he would be very glad to welcome individuals or teams from abroad to make use of it, and he agreed that participants should impress on their Governments the desirability of making the necessary arrangements to permit increased collaboration of that kind.

Mr. PANOFSKY thought that in addition to the points referred to by the Chairman further progress was required in the exchange of documentation.

The CHAIRMAN agreed that there was, for instance, need for better distribution of bubble chamber pictures and emulsions, though he recognized that the number of people potentially interested in such material could sometimes give rise to difficulties.

Although, as had been said, the machinery for developing co-operation in all these respects was already available, and although the initiative for making increased use of the existing opportunities should come from individual scientists and laboratories, he agreed that there would be no harm in urging the desirability of such increased collaboration on Governments. It might well be, however, that such a statement or appeal would be more effective coming from IUPAP than from the present Meeting, and he therefore suggested that the matter be taken up again in Dubna.

ARRANGEMENTS FOR FURTHER MEETINGS

Mr. AMALDI felt that the results of the present Meeting had been slightly disappointing. It had been agreed that efforts would be made to intensify exchanges, but he was afraid these might prove mere pious hope unless it were agreed to meet again in, say, a year's time in order to see what concrete progress had been made and decide whether it was time to go on to the next step.

Mr. PERRIN pointed out that the Meeting had agreed that international co-operation in the construction of a high-energy accelerator should relate not to the next generation of machines but to the one after that. In view of the plans made for the Serpukhov machine, the minimum energy level that was likely to be of interest to the Soviet Union for the next generation but one was one order of magnitude higher, i.e. of the order of 600 GeV. It would be extremely interesting for West European countries to know whether the Soviet Union and the United States thought it would be possible to begin planning such a machine in three or four years' time. It was clear that the United States was in favour of beginning such planning already, on the administrative as well as on the

scientific sides, and he wondered whether the Soviet Union would be in a position to answer that question in a year's time.

Mr. BOGOLYUBOV said he could not answer at the present stage.

The CHAIRMAN pointed out that what Mr. Bogolyubov and Mr. Weksler were being asked to indicate was not whether they now believed it would be possible to begin work on an intercontinental project in three or four years' time, but whether they thought it likely that they would be able to discuss that question in more concrete terms in July 1965 than they had been able to do in July 1964.

Mr. WEKSLER said that he personally felt it was unlikely that any further progress could be made or clarification given until the Serpukhov machine was in operation. As, however, the matter was primarily one for the State Committee, he suggested that the date of the next meeting be left open and that the initiative for convening it be left with the Director General of the Agency.

Mr. TAPE said he shared the views of those who wished to have some firm goals to which to look forward. On the other hand he must respect the judgement of his Soviet colleagues. He would emphasize that it would not, in his view, be useful for a further meeting to be convened in a year's time unless there were reasonable grounds for hoping that more progress could be achieved than on the present occasion as far as administrative and organizational aspects of the problem were concerned. On the scientific side he agreed that there were already sufficient opportunities for contact. He very much hoped that in the meantime the Governments concerned would consider the administrative and organizational aspects more carefully to see what they could do to ensure that the next meeting was a little more positive and constructive. He agreed with Mr. Weksler that the initiative for convening a meeting should be left to the Director General of the Agency and suggested that he (Mr. Eklund) might approach Governments concerned in, say, six months' time to find out whether they considered it might be useful to have a further meeting approximately one year from now.

Mr. EKLUND said he would be very happy to co-operate along the lines suggested.

Mr. ADAMS suggested that there would be much more chance of the next meeting leading to positive results if it was held after a firm decision was taken on the next-generation machines (up to 300 GeV). If the decision were not to construct such machines at national or regional level that might of course serve as a great impetus to constructing one at intercontinental level. In that connection he recalled that Mr. Weksler had said that the Soviet Government was not at present convinced that a clear case had been made out for a 1000 GeV machine. He wondered whether the same was true of a 300 GeV machine - which was after all of the same order of magnitude - because, if so, its views were at variance with what at present appeared to be the generally accepted view in the West.

Mr. WEKSLER said it was difficult to give a clear-out reply because circumstances were now so different from what they had been in the past. For example, theoreticians had at one stage postulated the existence of a proton-antiproton pair. They had calculated that a 6 GeV machine would be needed to detect the antiproton. Such a machine had been built and the antiproton discovered. The position with regard to what the Chairman had called the "third spectroscopy" was so unclear that it was impossible to say definitely that a 300 GeV machine or a 650 GeV machine or a 1000 GeV machine was required. Yet those machines differed enormously in terms of cost and it was cost that mattered to those who had to provide the funds, who were not after all specialists in high-energy physics. Moreover theories were changing rapidly: for example it now seemed that the intermediate boson, the subject of so much speculation as regards weakly interacting particles, was of much greater mass than at first had been thought. The position regarding the type of machine and energy level required might be clearer in a year or two, but until it was he was more convinced than ever that an attempt to make further progress would do more harm than good.

The CHAIRMAN said that in reply to Mr. Weksler he could do no more than reiterate the point already made by several other participants, namely that although the bevatron had been built for the specific purpose of detecting antiprotons, and had in fact led to their detection, that had been by no means the most important result achieved with it.

Mr. ADAMS said that Mr. Weksler's remarks corroborated his own feeling that if 200 or 300 GeV machines were to be built on the national or regional level, the construction of a 1000 GeV machine at the intercontinental level represented too small a step. His conclusion was that unless a decision were after all taken not to go ahead with the construction of a 200 or 300 GeV machine at the national or regional level, it would be best to leave consideration of an intercontinental machine aside for some time and concentrate for the time being on the other forms of collaboration discussed under Agenda item 4.

Mr. TAPE said that while he accepted Mr. Adams' contention that a negative decision on the national or regional construction of 200 or 300 GeV machines would naturally alter the situation as far as an intercontinental machine was concerned, he did not think that the date of the next meeting should be fixed solely by reference to the time when a final decision was taken regarding construction of the 200 or 300 GeV machines since that decision might be delayed beyond the time when a start could and should be made on preliminary consideration of the problems involved in the construction of an intercontinental machine of higher energy level.

Mr. WEKSLER said that in any event he thought it unrealistic to expect the situation to have changed in six months' time. In his personal view no change could be expected before two years had elapsed.

The CHAIRMAN felt that even so there would be no harm in the Director General making preliminary soundings in about six months' time.

from Team
Oct 23

PROGRAM
OF SCIENTIFIC AND TECHNICAL COOPERATION IN THE FIELD FOR
RESEARCH ON FUNDAMENTAL PROPERTIES OF MATTER IN
CALENDAR YEAR 1975

(State Committee and Academy of Sciences)
and US AEC

Subject	Laboratory	Visits from USSR		Visits from USA	
		to USA	to USSR	to USA	to USSR
		weeks	number of	weeks	number of
		:	people	:	people
1. Participation in joint USA-USSR antineutrino experiment with 15 feet bubble chamber FNAL (ITEP-IHEP-FNAL)	FNAL	52	4		
2. Discussion and coordination of procedures of scanning and analysis preliminars results of joint antineutrino experiment (ITEP-IHEP-FNAL)	FNAL	2 2	2 2	2	2
3. Discussion of the experiments with the detectors on transition radiation for an identification of the high energy particles (ErFI, FIAS-FNAL-Cornell-BNL)	FNAL	4	2		
4. Participation in the experiments on the measurements of total cross section of photoabsorbption on hadrons at high energies (UC Santa-Barbara-ErFI-FIAS-	FNAL	52	2		
5. Participation in the experiments on large momentum transfer hadron scattering (Cornell-FNAL-FIAS)	FNAL	52	2		

6. Investigation of the multiparticle generation in the pp-interactions at 400 Gev/c and in the π -p-interaction at 200-400 Gev/c in FNAL (FIAS-FNAL)	FNAL	9	1		
7. International topical seminar on the perspectives of the high energy physics development	USAEC	2	15		
8. Information visits to laboratories to discuss future callaborations		2	7	3 2	6 4
J I N R (Dubna)					
1. Study of inelastic processes in proton and deuteron gas targets (evaluation of data)	FNAL	26	3		
2. High energy proton interaction in a He gas target	FNAL	52	5		
3. Studies of transuranic elements	JINR			4	2
4. Studies of transuranic elements	Berkley	8	2		

5. Visits to laboratories for discussion of cooperative experiments

3

2

3

2

Prepared by

John M. Teem *Karl Strauch*
J. Teem K. Strauch

Coordinator on cooperation in research on the fundamental properties of matter for the USA

I. V. Chuvilo
I. V. Chuvilo

Coordinator on cooperation in research on the fundamental properties of matter for the USSR

Approved by the Second Meeting of the Joint Committee for Cooperation in the Peaceful Uses of Atomic Energy on October 11, 1974.

W. A. Anders *A. M. Petrosyants*
W.A. Anders A.M. Petrosyants

for the U.S. Part of the US-USSR Joint Committee

for the USSR Part of the US-USSR Joint Committee

Received from Pines: 08.29 (see telephone notes) 08.28/

Summary of Discussions with Professor I. M. Khalatnikov, Director of L. D. Landau Institute of Theoretical Physics and Academician A. M. Prokhorov, Head of Physics and Astronomy Section, Academy of Sciences, USSR.

On our arrival in Moscow we (Herring and Pines) were met by Professor Khalatnikov, who informed us during the ride from the airport to town that Academician Prokhorov had met with President Keldysh concerning the idea of joint working groups in theoretical physics, and that Keldysh had approved the initiation of two joint working groups during the coming year--one to meet in the USSR, one to meet in the USA. We encouraged Khalatnikov to arrange an early appointment for us with Prokhorov, and this was done--for Tuesday lunch. However Prokhorov's work on the commission to award State Prizes made it impossible for him to meet with us that day--so the luncheon was postponed to the following day.

At the lunch Prokhorov reported on the successful outcome of his meeting with Keldysh, who had indeed given his approval to establishing two working groups, and was leaving it to the four of us to arrange details which could then be embodied in a letter of understanding between the two Academies. Khalatnikov and Prokhorov had been thinking of a comparatively long term (3-6 months) visit by five senior scientists to work with a comparable (or slightly larger) group in the host country; we suggested that it might not be easy, at least in the beginning stages, to arrange for such a long term visit by Americans to the Soviet Union--so that perhaps initially we should think in terms of a one to three month visit by the five senior scientists.

Agreement was reached on the following general principles concerning the operation of the joint working groups:

1. Only scientists of the first rank would participate.
2. The composition of each group would be jointly determined by the Soviet and US co-chairman of the group in question.*
3. It was to be taken as a given that scientists who agree to participate in the work of a group would do so, barring unforeseen illness or family problems.

To a considerable extent, these same general principles have governed the five joint US-USSR symposia on foundations of the theory of condensed matter, and have proved to be eminently workable for this mode of interaction--with the Fourth and Fifth Symposia providing especially good examples of cooperation concerning the above points (i) to (iii).* Prokhorov agreed with our suggestion that this is not a commitment which either Academy should undertake lightly--that it would be better to do nothing, than to agree to establish such groups and then renege on essential aspects of their subsequent operation. He underlined the approval he had received from Keldysh on this point by noting that the failure of the cooperation arrangements between the Novosibirsk and Stanford laboratories of high energy physics was likely caused by Budker's failure to receive an explicit Academy commitment to the project.

* [Concerning point (ii)--the chairman of the group hosting the meeting has typically suggested a group of guest participants, and considerable effort has been made to include a substantive number of those suggested in the guest group.]

It was further agreed that the first two joint working groups be in the fields of solid-state theory and theoretical relativistic astrophysics; we were informed that during the first year (1975), it would be best if the joint working group in solid state theory met in the United States, while that in relativistic astrophysics met in the USSR.

There was some discussion between Prokhorov and Khalatnikov as to ways scientists visiting the USSR could receive a Soviet stipend sufficient to enable them to bring their families along to the USSR; they explained they viewed this as a Soviet problem, which they could solve. In this discussion, it was further noted that it would be highly desirable to have apartments available for visiting US scientists, rather than putting them up at the Academy hotel.

We suggested to Prokhorov that since the idea of joint working groups had been proposed to the Joint Commission on Science and Technology, there was considerable virtue in continuing Joint Commission support of the venture. Prokhorov agreed to discuss the matter with Kirillin; he did so, and communicated, through Khalatnikov, Kirillin's view that the project could be regarded as one which the Commission supports, while it delegates responsibility to the two Academies for its execution. On this basis, the attached memorandum has been drafted for consideration by the Joint Commission.

Finally, Khalatnikov suggested that the meeting of the Joint working group in solid-state theory be held during the period June-October, 1975, and that he would request permission to send five people for a period of three months to the U.S. He suggested that the topic for this group be superconductivity in quasi-one-dimensional systems, and he proposed as possible Soviet participants the following scientists: I. E. Dzaloshinskii, L. P. Gor'kov, I. M. Khalatnikov, A. M. Larkin and L. P. Pitaevskii. We responded that this would be an excellent group, and that there would be little difficulty in assembling a comparable US group to work with such a distinguished group of Soviet theorists. We further suggested that the Aspen Center for Theoretical Physics would be a good site for the joint working group; this would enable theorists from other fields to interact as well with the above Soviet theorists, whose interests span several fields. As of this writing, J. Bardeen, C. Herring, A. M. Luther, D. Pines, and D. Scalapino have already expressed interest in being part of such a working group.

MEMORANDUM FOR JOINT COMMISSION

Following discussions between Professor David Pines (Chairman, U.S. Working Group on Special Topics in Physics, and Member, NAS), Dr. Conyers Herring, (Member, NAS, and of Working Group on Special Topics in Physics), Academician A. M. Prokhorov (Head of Physics and Astronomy Department, USSR Academy of Sciences), and Professor I. M. Khalatnikov (Director, L. D. Landau Institute of Theoretical Physics and Corresponding Member, Academy of Sciences, USSR), and a further discussion between Academician Prokhorov and Deputy-Premier Kirillin, it is proposed that joint working groups be established on two special topics in physics: solid state theory and theoretical relativistic astrophysics and that the respective Academies of the two countries be asked to organize the detailed program for the initial operation of these working groups. It is anticipated that such working groups would include five leading physicists in the field from each country; during the first year of their operation, one group would meet in the USA and one in the USSR, with subsequent meetings of each group alternating between the two countries.

FOR OFFICIAL USE ONLY

DATE: March 12, 1975

To : Memorandum to Files

FROM : W. K. H. Panofsky *W KHP*

SUBJECT: Visit by N. I. Skrinskiy and Discussion of Future Collaboration with the Nuclear Physics Institute of the Siberian Branch of the Soviet Academy of Sciences at Novosibirsk

I. N. I. Skrinskiy visited at SLAC from Thursday, March 6 through Wednesday, March 12. He spent a substantial amount of time at SPEAR. He gave a lecture on electron cooling and other related activities at Novosibirsk. He also discussed many of the other experimental activities at SLAC with appropriate members of the senior staff. He made a visit to Varian Associates at the invitation of E. L. Ginzton, and to the High Energy Physics Laboratory of Stanford University.

II. We discussed several areas of future collaboration following my discussions with G. I. Budker during my visit in Novosibirsk. Both of us are aware of a large number of uncertainties. These are both the question of financial support, but in the case of the Novosibirsk Institute the whole question of presidential succession in both the Siberian branch and the Presidium of the Soviet Academy of Sciences, as well as general questions of the climate of detente and of administrative practices in the Soviet Union.

The various areas of collaboration were left as follows:

A. Participation of an invitee from the Novosibirsk Institute at the PEP Summer Study. Skrinskiy received the detailed papers prepared by Karl Strauch concerning the PEP Summer Study, and he is aware that we would welcome a participant from his Institute. He will advise me as soon as practicable whether the issuance of an invitation has a substantial chance of favorable reception.

B. A Long-Range Visit of a Particle Physicist from Novosibirsk at SLAC. Skrinsky agrees that a long-range visit by a member of the Institute at the SPEAR experimental group would be most useful, and he discussed some possibilities with Burt Richter. Skrinsky will advise me whether an invitation to a specific individual would have a good chance of acceptance.

C. Transfer of SPEAR I Detector to Novosibirsk. The SPEAR I detector will be replaced by SPEAR-II in something like 18 months. The SPEAR-I detector would be an extremely powerful tool at VEPP-IV provided VEPP-IV attains its design goal of 7 GeV as reasonable luminosity. Clearly having a detector of established performance like the SPEAR-I solenoidal instrument available at

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the very beginning of operation of VEPP-IV would permit immediately exciting experiments in annihilation values in a new range of energies. The following alternatives were discussed:

1. Outright transfer based on a negotiated purchase arrangement between governments in late 1976.
2. After the experimental visitor, as discussed under B. above, has returned to Novosibirsk a decision will be made at Novosibirsk whether there are sufficient skills and experience available at Novosibirsk to receive the detector. At that time decisions of transfer will be made.
3. Collaborative arrangement between SLAC and Novosibirsk in doing colliding beam experiments on VEPP-IV. We agreed that collaborative experiments on VEPP-II-M which Budker had proposed to me would not be useful with SLAC personnel since the energy was too low; however some discussions are in progress with Roy Weinstein of Northeastern University for participation in VEPP-II-M. We also agreed that collaboration by SLAC particle physicists in the work of VEPP-IV could not be realized until there was conviction among the U.S. community in general, and the SLAC community in particular, that VEPP-IV would really work at reasonable energy and luminosity on a predictable schedule. Therefore Skrinskiy reaffirmed that they will try to arrange for 1976 a study on the experimental opportunities at VEPP-IV to be held at Novosibirsk, and I promised I would do my best to secure attendance by SLAC experimentalists. Subsequent to that meeting negotiations could then commence about a collaborative experimental program of which the transfer of the SPEAR-I detector might be a part.

D. SLAC Assistance in Providing a VEPP-IV Positron Injector. Skrinskiy realizes that the main impediment towards successful operation of VEPP-IV is the positron source. He gave me more details about the discussions on the transfer of the Kharkov electron linear accelerator: he said these discussions are not dead but that Kharkov was unwilling to consider such a transfer until their next accelerator is assured. Moreover the equipment and particularly the modulators are so antiquated that their installation at Novosibirsk would not be a good idea. We discussed the possibility whether SLAC could provide under outright purchase or other government-approved agreement provision of a suitable injector. Approximately 1.5 GeV energy is desirable and this could be attained via energy doubling. We also discussed whether the Mark III HEPL accelerator component could be part of such an arrangement, and I checked with Mason Yearian, Acting Director of HEPL, on the status of Mark III. Currently Mark III is operating up to an energy of 500 MeV (as limited by available klystrons) and is run on demand for detector calibrations or similar test services. There have been requests from other sources for parts of Mark III

but none for Mark III as a whole. Naturally the availability of Mark III to serve as an injector for VEPP-IV would have to be discussed if and when this would be taken as a serious proposal by the Novosibirsk Institute.

III. General. We discussed the general question of communication. Skrinskiy maintains that there were no obstacles for him to write technical letters of a non-committing nature without any delay. Specifically he will write me as soon as possible which, if any, of the collaboration possibilities listed under II should be pursued. He also confirmed the policy of the Novosibirsk Laboratory that if components of accelerators were manufactured in-house then they must incorporate innovative principles. However, if components were to be procured either under collaborative agreements or by purchase from outside sources, then the question of innovation would not be involved.

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ZUCKER ASSOCIATE DIRECTOR OF OAKRIDGE NATIONAL LAB WILL BE IN
MOSCOW AT EXCELLERATOR CONFERENCE NOV 18 AND 19 STOP HE WOULD
LIKE TO VISIT DUBNA FOR DISCUSSION WITH ACADEMICIAN FLEROV ABOUT
COLLABORATION AND TRANSURANIC ELEMENTS STOP PLEASE ARRANGE I
POSSIBLE STOP
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DIRECTOR INSTITUTE OF THEORETICAL AND EXPERIMENTAL PHYSICS
MOSCOW (USSR)
ALEXANDER ZUCKER ASSOCIATE DIRECTOR OF OAKRIDGE NATIONAL LAB
WILL BE IN MOSCOW AT EXCELLERATOR CONFERENCE NOV 18 AND 19 STOP
HE WOULD LIKE TO VISIT DUBNA FOR DISCUSSION WITH ACADEMICIAN
FLEROV ABOUT COLLABORATION ON TRANSURANIC ELEMENTS STOP PLEASE
ARRANGE IF POSSIBLE STOP
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13:22 EDT

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POST OFFICE BOX X
OAK RIDGE, TENNESSEE 37830

Office of the Director

December 18, 1974

Professor Victor Weisskopf
Department of Physics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Dear Professor Weisskopf:

Enclosed is a draft of a letter I propose to send to Bogolubov as we continue to negotiate toward an exchange of US-Soviet scientists in the field of heavy element studies.

The Dubna Scientific Council meets in January and it would be good if they could act on this business at that time. I would like, therefore, to ask you for a review of this letter at the earliest opportunity.

Sincerely yours,

A handwritten signature in cursive script that reads "Herman Postma".

Herman Postma

HP:c

Enclosure

DRAFT

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POST OFFICE BOX X

OAK RIDGE, TENNESSEE 37830

Office of the Director

December 18, 1974

Dr. N. Bogolubov, Director
Joint Institute for Nuclear Research
Head Post Office
P. O. Box 79
Moscow, U. S. S. R.

Dear Dr. Bogolubov:

During his visit to the Soviet Union in October, Dr. John Teem initiated discussions concerning a possible US-USSR collaboration in the field of heavy element synthesis as part of the scientific exchange in fundamental properties of matter. In November, Dr. Alexander Zucker of this Laboratory and Professor G. N. Flerov of the Joint Institute for Nuclear Research developed these ideas in more detail. In a meeting at Dubna on November 21 between Dr. Zucker and Drs. Shimane, Shcherbakov, Flerov, Kaun, Oganessian, and Shvanev, this matter was discussed more formally; the minutes of this meeting show that the parties present agreed on the value and importance of the scientific collaboration. As an outgrowth of these discussions between Soviet and U. S. scientists, we are now ready to propose a tentative collaborative research plan for your comments.

The exchange would take place in two phases. During the first phase, beginning in the Spring or Summer of 1975, two Soviet scientists would visit the Oak Ridge National Laboratory and, at approximately the same time, two United States scientists would visit the Joint Institute for Nuclear Research. Each of these visits would last about four weeks. The purpose of these visits would be to familiarize the Soviet-US groups with each other's equipment, and to carry out preliminary experiments of mutual interest. We suggest that an appropriate experiment for these two visits concern the alpha decay and spontaneous fission branching of $^{255}_{104}$. This nuclide was first made at the JINR by bombarding a lead target with a titanium beam. This nuclide could be further studied at your Institute by means of your recently developed alpha recoil time-of-flight mass identifying spectrometer. At

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Dr. N. Bogolubov

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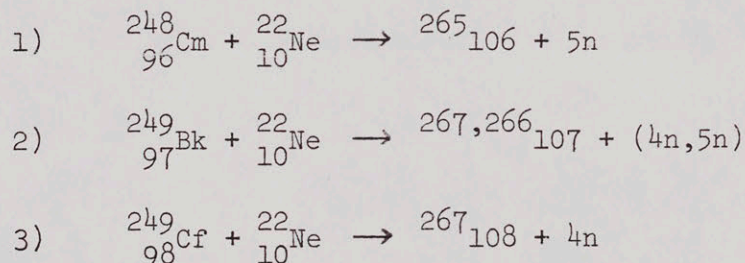
December 18, 1974

the Oak Ridge National Laboratory, we would bombard ^{243}Cm or ^{244}Cm with ^{16}O to produce the isotope $^{255}_{104}$ and study its properties with our X-ray alpha coincidence technique.

In the course of this work, Soviet scientists would gain familiarity with the alpha X-ray apparatus, and U. S. scientists would become familiar with the experimental arrangement and procedures at the Joint Institute for Nuclear Research. Such experience will be valuable when the main phase of the exchange takes place about a year later.

The principal effort of the exchange would be in the second phase which would begin in the Spring of 1976. This part of the collaboration would involve a visit of about six-months' duration by approximately four American scientists from the Oak Ridge National Laboratory to the Joint Institute for Nuclear Research. The U. S. scientists would bring with them targets of heavy elements such as ^{248}Cm , ^{249}Bk , ^{249}Cf . They would also bring with them a fairly complete system of experimental apparatus including detectors, electronics, pumps, a small computer, and other specialized hardware, to be used for the alpha X-ray coincidence method of identifying elements. The equipment would be mounted in a trailer for transport to Dubna and for use there. The trailer would also contain electrical gear necessary to convert the 50 cycle 220 volt power to 60 cycle 110 volts required by the experimental equipment. By assembling the ORNL apparatus here and testing it with lighter mass ions from the Oak Ridge cyclotron, the collaborative experiments with the Soviet scientists could commence in Dubna with minimum delay after the trailer arrives.

We propose for your consideration a set of three reactions for study in the US-USSR collaboration at JINR. These reactions are appropriate for the very intense ^{22}Ne beams available at Dubna, and for our heavy element targets. They are:



These reactions are of particular interest because, in addition to making new isotopes and as yet undiscovered elements, they allow

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Dr. N. Bogolubov

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December 18, 1974

We present these views for your consideration and we look forward to your comments. Before the proposed visits can take place, no doubt an official protocol will have to be completed between the U. S. and the U.S.S.R. We expect, however, that the protocol will be based on conclusions reached in the present exchange of letters.

Sincerely yours,

Herman Postma
Director

HP:c

cc: O. L. Keller
P. H. Stelson
K. Strauch
J. M. Teem
V. Weisskopf
A. Zucker

DRAFT

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TREASURER

JOSEPH A. BURTON
BELL LABORATORIES

October 30, 1974

Dr. Henry Kissinger
Secretary of State
Department of State
Washington, D. C.

Dear Henry:

I am writing to you in my capacity as President of the American Physical Society and I am doing so with the concurrence of the Council of that Society.

The matter concerns the harassment of Soviet physicists who have declared their intent to emigrate to Israel. Apparently, according to information received by various American physicists, this harassment is still continuing including threats of persecution for "parasitism" of physicists who have been removed from their jobs after having declared their intention to leave.

According to the understanding you have reached with the Soviet Union, as reflected in your letter to Senator Jackson, published in the "New York Times" on October 18: "First, punitive actions against individuals seeking to emigrate from the U.S.S.R. would be violations of Soviet laws and regulations and will therefore not be permitted by the Government of the U.S.S.R. In particular, this applies to various kinds of intimidation or reprisal, such as, for example, the firing of a person from his job, his demotion to tasks beneath his professional qualifications and his subjection to public or other kinds of recrimination." Naturally this understanding requires implementation in the future and it may be premature to judge whether the Soviet authorities have in fact taken action to correct past practices which are clearly in violation of the understanding as quoted. Nevertheless, I would like to call to your attention the specific case of Professor Voronel who declared his intention to emigrate almost three years ago. Professor Voronel, together with his associates, has been removed from his job and was denied attendance at a conference on magnetism held in the U.S.S.R. and which was attended by several U.S. visitors. As a result of this event and subsequent activities of Professor Voronel this has become a case of international attention and, according to the best of our knowledge, Professor Voronel is still exposed to the threat of persecution for parasitism while at the same time he has been deprived of scientific contacts and gainful employment.

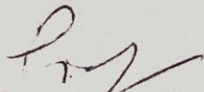
Dr. Henry Kissinger

-2-

October 30, 1974

I remain deeply dedicated to improving scientific collaboration and exchange of information between American and Soviet physicists and consider this to be a worthy goal in its own right. However if the harassment of Soviet scientists who wish to emigrate continues, this would appear not only to be in violation of the agreements which reportedly have been signed, but would also cause an increasing degree of disaffection with the goal of Soviet collaboration in the U.S. scientific community. For both of these reasons I would like to suggest that you bring this matter to the attention of the Soviet authorities.

With best personal regards,



Wolfgang K. H. Panofsky
President

STANFORD UNIVERSITY

STANFORD LINEAR ACCELERATOR CENTER

Mail Address

SLAC, P. O. Box 4349
Stanford, California 94305

Oct. 24, 1974

Mr. Robert D. Thorne, Manager
U. S. Atomic Energy Commission
San Francisco Operations Office
1333 Broadway
Oakland, Calif. 94612

Dear Mr. Thorne:

I should like to request approval to invite Professor G. I. Budker, Director of the Institute of Nuclear Physics of the Siberian Branch of the Soviet Academy of Sciences, together with his wife, to spend a period up to one month at SLAC, the precise period being in conjunction with the New Orleans International Conference now scheduled for March 4-7, 1975. It is necessary for Professor Budker to be accompanied by his wife owing to the precarious state of Professor Budker's health. His wife serves as a guardian of his health care, as well as acting as translator.

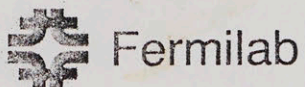
We should like to be in a position to pay the expenses of Professor Budker and his wife for room and subsistence while he is a guest at SLAC. We therefore request approval for expenditure of Contract funds up to an amount of \$2000 for that purpose. Should it be difficult to grant this request, we should like to receive an approval for the invitation and we would then make an attempt to obtain support from private sources. It is our intent that this invitation be considered an information visit to laboratories to discuss future collaborations as covered under Item 8 of the Program of Scientific and Technical Cooperation in the Field for Research on Fundamental Properties of Matter in calendar year 1975, as signed by Dr. Teem, Professor K. Strauch and Commissioner Anders for the United States and by Professor I. V. Chuvilo and Chairman A. M. Petrosyants for the Soviet Union on October 11, 1974.

I would appreciate receiving approval in accordance with this request as soon as it is practicable.

Sincerely yours,

W. K. H. Panofsky
For W. K. H. Panofsky

cc: John Teem, Director of Research, AEC
Victor Weisskoff, M.I.T. ✓
Stanley Stamp



NAL
Fermi National Accelerator Laboratory
P.O. Box 500 • Batavia, Illinois • 60510

Directors Office

October 4, 1974

URA TRUSTEES

Attached is a copy of a letter I have mailed to William Wallenmeyer. It is my understanding that this letter and related matters will be discussed at the Trustee meeting next week. Please treat the subject information as privileged.

Sincerely,

Med Goldwasser

Edwin L. Goldwasser

CONFIDENTIAL

October 4, 1974

Dr. William A. Wallenmeyer
Division of Physical Research
U.S. Atomic Energy Commission
Washington, D.C. 20545

Dear Bill:

It now appears that substantial construction funds authorized and appropriated for Fermilab may fall prey to this year's economic crisis and to the government's response to that crisis. It goes without saying that this loss will constitute a severe blow to our overall program at a time when we are already struggling, with insufficient manpower and support, to complete and bring into operation a new laboratory to meet the specifications laid out in our initial design report, our subsequent agreements with the AEC and the challenges posed by the JCAE.

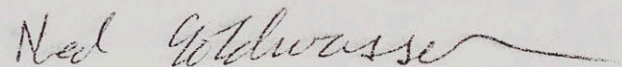
During construction, we have been able to achieve performance goals which, in some instances, have surpassed our initial plans and hopes. However, although we have been able to achieve an energy of 400 GeV instead of the initially projected 200 GeV, we have not yet reached our intensity goal of 5×10^{13} protons per pulse, we have not yet completed all phases of the construction of the Central Laboratory Building, and we have not yet completed the experimental areas required to implement our approved program of research. There are a number of projects, implicitly encompassed within the initially defined scope of the authorization, which remain to be completed. At every juncture we have been careful to conserve sufficient construction funds to enable us to complete all structures and facilities encompassed within the initially defined scope of the project, and to bring them into operation in a way that would meet design specifications. However, those requirements have not yet all been met, so the presently contemplated withdrawal of construction funds will not simply restrict an increase in the scope of the project; it will actually preclude our completion of a number of items which lie explicitly within that scope. We are now making a detailed study of the impact of such an action in order to determine in what respects the project will fall short of the initially defined scope if the contemplated cut in funds is actually imposed.

The Energy-Doubler-Energy-Saver is another important laboratory activity which would be curtailed by the contemplated cut in construction funds. It is a development that has been undertaken, with AEC and JCAE encouragement and within available construction funds. Not only does that activity

provide an important window to the future for this Laboratory and for other high energy physics installations but also might well provide a way of realizing a substantial economy in our energy consumption. Moreover it has a high probability of providing desperately needed spin-off that could be important to the nation's energy problem. The press of basic research on the development of advanced technology has resulted in important industrial progress in the past, progress that has served as an important stimulus to the economy. With an energy crisis threatening the nation, this is just the kind of project that should be initiated and stimulated wherever the opportunity exists. Surely it would be short-sighted to cut it off.

In closing, I cannot refrain from calling attention to the fact that throughout the course of this construction project we have used our funds sparingly; people have worked with great ingenuity; and under considerable pressure to implement economical solutions to difficult technical problems. In fact, the staff has accepted an inhuman work load with the implicit belief that through their blood and sweat and long hours, through their ingenuity, through their austerity, through their willingness to put up with discomforts, there would be realized a greater capability for this laboratory and a more economical investment of already inadequate high energy physics dollars. If the reward for such performance is to be the ultimate cancellation of funds which have been conserved at considerable sacrifice, it will certainly be destructive to the morale of our staff, and it will hardly be viewed as an incentive, by other contractors in the future, to conserve their financial resources with such zealous care. Rather, there will be a strong temptation to use available funds as quickly as possible, wasteful as that may be, in an effort to preclude the kind of action that has now been proposed with regard to our remaining dollars.

Sincerely,



Edwin L. Goldwasser

cc: N. F. Ramsey
D. L. Bray

STANFORD UNIVERSITY

STANFORD LINEAR ACCELERATOR CENTER

Mail Address

SLAC, P. O. Box 4349
Stanford, California 94305

Nov. 4, 1974

Mr. Ralph Shannon
Director, Security Division
U. S. Atomic Energy Commission
San Francisco Operations Office
1333 Broadway
Oakland, Calif. 94612

Dear Mr. Shannon:

My purpose in writing is to appraise you of our plans to host the "1975 International Symposium on Lepton and Photon Interactions at High Energies" from August 21 through August 27, 1975.

This conference will involve both speakers and delegates from Sino-Soviet bloc countries. However, even though SLAC is the host and organizer, the conference will not be held at the laboratory but on the main Stanford campus, and there will be no cost to the contract for direct support of the Sino-Soviet bloc nationals. Thus the direct involvement of your office comes into play only for two items:

1. Undoubtedly some or all of the Sino-Soviet bloc nationals will want to make casual visits to the laboratory during the conference to talk with staff and to see our installation.
2. We will want soon to begin negotiations with other AEC laboratories to arrange post-conference visits for some of the delegates to Argonne National Laboratory, Brookhaven National Laboratory, Los Alamos Scientific Laboratory (as we have done after so many previous conferences).

We would hope, after you read what follows and after we have provided whatever further information you might need, that you could grant blanket approval in advance for these two activities ancillary to the off-site conference.

* * * * *

What is taking place regarding Sino-Soviet participation in the conference is as follows:

- (a) We are issuing invitations to two USSR scientists to deliver invited papers at the conference. These are:

Professor V. A. Khose
Leningrad Institute for Nuclear Physics
Gatchina, Leningrad, USSR

Mr. Ralph Shannon
Nov. 4, 1974
Page 2

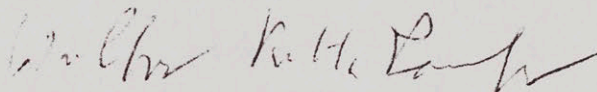
Professor A. M. Polyakov
Academy of Sciences, USSR
Landau Institute for Theoretical Physics
Moscow, USSR

- (b) We have sent notices of the conference to several institutions in the USSR and in other Sino-Soviet bloc nations asking that the notices be promulgated so that we may receive requests for invitations. A copy of this announcement and a copy of the mailing list for this action are attached.
- (c) We are asking particular persons in each Sino-Soviet bloc nation to act as delegate selection committees. Once we have received responses to the notices in (b) above, we intend to forward these responses together with a derived national quota to the appropriate national delegate selection committee. The committees will determine who from each nation will receive official invitations from us to attend the conference.

As we receive invited speaker acceptances and as we learn of delegate selection, we will forward the names to you. Of course we will not know until the conference itself is underway the actual names of the Sino-Soviet bloc nationals who may want to pay a casual visit to the laboratory and who may want to take advantage of tours to the other laboratories mentioned above. It is for this reason we are requesting advance blanket approval for these two activities.

Please let me know if you need any further information at this time.

Sincerely yours,



W. K. H. Panofsky
Director

cc: J. Ballam
N. Brand
M. Abrahams
D. Dupen
S. Stamp
V. Weisskopf



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

ORGANIZING COMMITTEE

Chairman:

J. Ballam

Program Chairman:

S. M. Berman

Arrangements Chairman:

E. D. Bloom

J. D. Bjorken

W. Chinowsky

S. D. Drell

F. J. Gilman

R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Professor V. A. Khose
Leningrad Institute for Nuclear Physics
Gatchina, Leningrad 188350
USSR

Dear Khose:

The 1975 International Symposium on Lepton and Photon Interactions, sponsored by IUPAP, will be held at Stanford University, Stanford, California, on August 21-27, 1975.

For this Symposium the subject will be enlarged to cover high-energy lepton-induced reactions, including photoproduction, inelastic and elastic electron and muon nucleon interactions, colliding beams of electrons and positrons, neutrino- and antineutrino-induced reactions and leptonic final states in proton-proton collisions. The program will consist of about 25 one-hour talks to an international audience of approximately 450 physicists.

Many important results from several laboratories will be given their first public presentation, and it is our intention to have these exceptional experiments presented by the responsible experimental group rather than by a rapporteur. In addition to such presentations, we would like to have a series of selected review talks covering both theory and experiment relating to lepton-induced reactions at high energy.

In this respect the Organizing Committee of the Symposium takes great pleasure in inviting you to present to the invitees a selected review of the current status of Theoretical Models of e^+e^- Annihilation into Hadrons. As an invited speaker all your travel and living expenses will be covered by the symposium sponsors.

We are especially hopeful that you will be able to accept this invitation in view of your important contributions and your recognized competence in this field. We also feel that the appreciation of Soviet work and recent progress in this field will be enhanced by your participation.

Please address all correspondence to: Symposium Secretary
Stanford Linear Accelerator Center
P. O. Box 4349
Stanford, California 94305

SLAC Telephone
(415) 854-3300

Professor V. A. Khose

-2-

Oct. 10, 1974

Naturally, to have this subject properly covered for the Symposium, we must have your reply no later than March 1, 1975. If no confirmation is received by then, we will assume that your attendance is uncertain and will reluctantly turn to an alternate speaker.

On behalf of the Organizing Committee, I look forward to your affirmative reply.

Very sincerely yours,



J. Ballam
Chairman, Organizing Committee

JB:hm

cc: A. Markov
N. Bogolyubov
I. Chuvilo

bcc: S. Berman
E. Bloom
R. Nelson ✓



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

ORGANIZING COMMITTEE

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J. Bollom

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S. M. Berman

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E. D. Bloom

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W. Chinowsky

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F. J. Gilman

R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Professor A. M. Polyakov
Academy of Sciences, USSR
Landau Inst. for Theoretical Physics
B-334, Vorobevskoe Shosse 2
Moscow, USSR

Dear Polyakov:

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Stanford, California 94305

SLAC Telephone
(415) 854-3300

Professor A. M. Polyakov

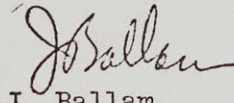
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Very sincerely yours,



J. Ballam
Chairman, Organizing Committee

JB:hm

cc: A. Markov
N. Bogolyubov
I. Chuvilo

bcc: S. Berman
E. Bloom
R. Nelson ✓

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Boulevard Lenin 72
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Academia Sinica
Inst. of Physics
Theory Group
Peking, CHINA

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Slovak Technical Univ.
Physics Dept.
Gottwaldovo Nam 50
Bratislava, Czechoslovakia

Bratislava, Inst. Phys.

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Inst. of Physics
Dubravska cesta
88930 Bratislava 1, Czechoslovakia

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Mlynska Dolina
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Physics Inst.
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Deutsche Akad. der Wissen.
Inst. fur Hochenergiephysik
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Warsaw, POLAND

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Bucharest 22, RUMANIA

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Azerbaijani, Fiz. Inst.

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Kurchatov Inst. Moscow

Inst. Atomnoi Energii, Kurchatov
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Moscow, INR

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Moscow, U.S.S.R.

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Dubna, JINR

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Novosibirsk, IYF

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Akademgorodok
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Tartu, Estonia, USSR

Tashkent, IYF

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Institut Yadernoi Fiziki
Tashkent, Uzb., USSR

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Theoretical Physics Dept.
Tbilisi, USSR

Tbilisi, Inst. Phys.

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Lab of Nuclear Science
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Dniepropetrovsk State Univ.
Prospekt Karla Marxa 35
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Inst. of Physics
Hanoi, North Vietnam

YUGOSLAVIA

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Boris Kidric Inst. Nuclear Sci.
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Boskovic Inst. Zagreb
Institut Budjer Boskovic
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P. O. Box 1016
41000 Zagreb, Yugoslavia

Zagreb U.
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Physics Dept.
TRG Marsala Tita 14
Zagreb, YUGOSLAVIA



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

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W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Professor A. Markov
USSR Academy of Sciences
Leninsky Prospekt 14
Moscow B-71, USSR

Oct. 10, 1974

Dear Professor Markov:

As you probably know, the 1975 International Symposium on Lepton and Photon Interactions will be held at Stanford University, Stanford, California, on August 21-27, 1975.

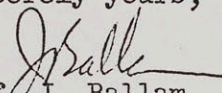
For this Symposium the subject will be enlarged to cover all high-energy lepton-induced reactions, including photoproduction, inelastic and elastic electron and muon scattering, colliding beams of electrons and positrons, neutrino- and antineutrino-induced reactions and leptonic final states in proton-proton collisions.

The Organizing Committee for the Symposium would greatly appreciate it if you and Professors Bogolyubov and Chuvilo would serve as a Committee to select the Soviet delegates to this meeting.

Although the exact quotas for the various countries have not been set, we would expect to invite about 30 Soviet physicists. The exact number should be in your hands by January 1, 1975, but we hope this earlier notice will give you extra time to make your selections, which should be made known to us no later than March 1, 1975.

We sincerely hope that you will be willing to take on the difficult task of delegate selection and would greatly appreciate it if you would choose a chairman from among you with whom we can correspond. May we hear from you before December 1, 1974?

Sincerely yours,


Prof. J. Ballam
Chairman, Organizing Committee

JB:hm

Please address all correspondence to: Symposium Secretary
Stanford Linear Accelerator Center
P. O. Box 4349
Stanford, California 94305

SLAC Telephone
(415) 854-3300



Sponsored jointly by the International Union of Pure and Applied Physics, the U.S. Atomic Energy Commission, the National Science Foundation, and the Stanford Linear Accelerator Center

1975 International Symposium on Lepton and Photon Interactions at High Energies

August 21-27, 1975

Stanford University

ORGANIZING COMMITTEE

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J. Ballam

Program Chairman:

S. M. Berman

Arrangements Chairman:

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J. D. Bjorken

W. Chinowsky

S. D. Drell

F. J. Gilman

R. Hofstadter

R. F. Mozley

W. K. H. Panofsky

M. L. Perl

B. Richter

R. E. Taylor

Oct. 10, 1974

Professor I. Chuvilo
I.T.E.P.
Bolshaia Tscheremuschkinskaja 89
117259, Moscow V-259, USSR

Dear Professor Chuvilo:

As you probably know, the 1975 International Symposium on Lepton and Photon Interactions will be held at Stanford University, Stanford, California, on August 21-27, 1975.

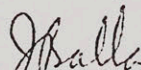
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M. L. Perl

B. Richter

R. E. Taylor

Professor N. Bogolyubov
J.I.N.R. (Dubna)
Head P.O. Box 79
Moscow, USSR

Dear Professor Bogolyubov:

As you probably know, the 1975 International Symposium on Lepton and Photon Interactions will be held at Stanford University, Stanford, California, on August 21-27, 1975.

For this Symposium the subject will be enlarged to cover all high-energy lepton-induced reactions, including photoproduction, inelastic and elastic electron and muon scattering, colliding beams of electrons and positrons, neutrino- and antineutrino-induced reactions and leptonic final states in proton-proton collisions.

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R. F. Mozley
W. K. H. Panofsky
M. L. Perl
B. Richter
R. E. Taylor

Professor G. Pocsik
Institute of Theoretical Physics
Eotvos University
Budapest, Hungary

Dear Professor Pocsik:

As you probably know, the 1975 International Symposium of Lepton and Photon Interactions at High Energies will be held at Stanford University. The dates of the Symposium are August 21-27, 1975. Attendance will be by invitation only with a total of 430 physicists participating.

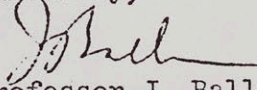
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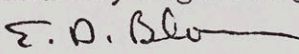
In order to insure that information about the Symposium is widely disseminated, we are distributing the enclosed notice to many institutions engaged in high energy physics. We are also placing announcements in the publications PHYSICS TODAY, MEETINGS ON ATOMIC ENERGY and EUROPHYSICS NEWS.

We would greatly appreciate it if you would be willing to take responsibility in the selection of the Hungarian delegates. As you can see, the enclosed notice suggests that any physicist, who wishes to attend the Symposium, inform us of his interest. As an aid to you, we will forward the names of all Hungarian physicists who have responded to the Symposium announcement, and we ask you to take these people into consideration when you receive your allotment of invitees some time in January 1975. Of course, you will be free to recommend any list within the allotment, and we will abide by your choice.

We are looking forward to hosting our colleagues next year and hope our Symposium will be as successful as those in the recent past.

Sincerely,


Professor J. Ballam
Chairman, Organizing Committee


Professor E. D. Bloom
Chairman, Arrangements Subcommittee

Enclosure.

INSTITUTE OF THEORETICAL PHYSICS
EÖTVÖS UNIVERSITY, BUDAPEST
Budapest, VIII. Puskin u. 5-7
T.: 341-126 130-083

Prof. J. Ballam
Chairman of Organizing Committee
SLAC, Stanford

October 29, 1974

Dear Professor Ballam,

Thank you very much for your letter of October 15. I can promise you that I shall do my best in the selection of the candidates.

Sincerely Yours

György Pócsik
Prof. G. Pócsik

cc: R. Nelson ✓
E. Bloom



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Professor M. Miecowicz
Institute of Nuclear Physics
al Michiewicza 30
Krakow, Poland

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