"APPROVED"

Academician D.D.Kisch Director of the Joint Institute for Nuclear Research, Dubna, USSR

22. 06 1990 date

Arma

Rector of the versity of Thessaloniki

PROTOCOL

of the collaboration between the Joint Institute for Nuclear Research (JINR), Dubna, USSR and the Nuclear Physics Laboratory of the University of Thessaloniki, Greece (NPLT) on carrying out joint studies of interactions between relativistic heavy ions and atomic nuclei using (mainly) nuclear track detectors, technique.

1. The objectives of the cooperation

- 1. The parties sign the present protocol of scientific cooperation for the purpose of studying the fragmentation of projectiles and target nuclei, the production and decay of radioactive nuclides in reactions with relativistic heavy ions on of Synchrophasotron or/and Nuclotron accelerators.
- 2. This collaboration should result in the use of the Synchrophasotron and experimental installations available at Dubna more efficiently, in the construction of new set-ups based on experience accumulated by the parties and in making the best use of the facilities of both parties in performing joint experiments at Dubna, or elsewhere.
- 3. The parties believe that this cooperation should open up possibilities for new studies in the field of relativistic nuclear physics.

II. Scope of the collaboration and the obligations of the parties.

- 4. According to the present protocol, the studies are carried out within the research programs of the parties.
- 5. By signing this protocol, the parties agree upon the following:
- a) to carry out joint experiments on interactions between relativistic heavy ions and atomic nuclei within the research programs approved by the JINR and NPLT Directors,
 - b) to construct a set-up for the studies,
- c) to summarize the results of the joint work and to publish them.
- 6. To fulfil joint work according to the present protocol, the Joint Institute for Nuclear Research agrees upon the following: to irradiate nuclear targets with relativistic heavy ions from the Synchrophasontron or/and Nuclear and to analyze experimental data using Dubna computers.

The Nuclear Physics Laboratory of Thessaloniki agrees upon the following:

to prepare an experimental set-up for measuring the irradiated targets transported from Dubna to Thessaloniki. To build-up at Thessaloniki an automatic system for tracks measurements and analysis based on "image analysis technique".

- 7. The parties agree to have an exchange of their collaborators for the participation in experiments, for the processing and analysis of experimental data and for the preparation of joint publications.
- 8. The results of joint investigations will be published in scientific journals and preprints upon the agreement of the cooperating parties.
- 9. The staff of the two parties should observe the regulations and safety rules being in effect at JINR and NPLT.
- 10. Each party will render its assistance to its visitors from the other Institute in solving practical problems.

- 11. The expenses associated with the performance of the joint experiments at Dubna and Thessaloniki will be covered by JINR and NPLT, respectively. The sending party should pay all the expenses, unless personal invitations are issued.
- 12. All problems that may arise in connection with the present protocol during the period of its action, as well as any amendments in it, will be resolved by correspondence.
- 13. The present protocol will be in force from the moment of its approval by the JINR and NPLT Derectorates till 1996.
- 14. a) In relation to Article II.7 and to facilitate the exchange of scientific information resulting from the analysis performed in the home laboratory of each participant, to discuss experimental results, and to prepare publications and new experiments, there should be an annual meeting among all parties to the experiments.
- b) The place of meeting, which is to be proposed by scientific involved in the experiments and approved by the directors of the JINR and the NPLT, should rotate among the laboratories of the participating members.
- c) For each annual meeting, living expenses for two delegates from each the JINR or the NPLT will be supported by the hosting laboratory when the meetings take place in the USSR or Thessaloniki. When the meeting is in a country other then the USSR or Greece each delegate will arrange to cover his own living expenses. Travel of delegates will be supported by each laboratory of origin.
- 15. The persons responsible for the fulfilment of this protocol are: Dr. B.A.Kulakov (JINR) and Dr. M.Zamani (NPLT).

The protocol is drawn up in triplicate in Russian, Hellenik and English. The Russian, Hellenik and English texts are completely authentic.

Dubna

A.M.Baldin
Director Laboratory of
High Energies, Joint
Institute for Nuclear
Research

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Dubna

Thessaloniki 5.11. 1990

Stefanos Charalambous Director Nuclear Physics Laboratory Univ. Thes/niki

Thessaloniki