

§6. Study on History of International Exchange and International Conferences on Plasma Physics and Nuclear Fusion Research

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1. Background and Purpose

In 1953, David Dwight Eisenhower delivered the speech entitled “Atoms for Peace” at the United Nations General Assembly. After this speech, information of the peaceful use of atomic energy was declassified. The First United Nations Conference on the Peaceful Uses of Atomic Energy (so-called “Geneva Conference”) was held in 1955. Homi J. Bhabha, the President of this conference, stated in his presidential address that he ventured to predict that a method would be found for liberating fusion energy in a controlled manner within the next two decades (August 8, 1955). His speech gave the opportunity to declassify the information of nuclear fusion energy research of each country. In the Second Geneva Conference in 1958, the session of nuclear fusion was established, and researchers from many countries reported their results. Consequently, the International Atomic Energy Agency (IAEA) held Conference on Plasma Physics and Controlled Nuclear Fusion Research (IAEA Conference) in 1961. In this period, many international conferences on nuclear fusion research were held and international exchange became active throughout the world. For example, in Japan, Japan Atomic Energy Research Institute (JAERI) held the first international conference on nuclear fusion research field in Japan: Panel on Low Beta Toroidal Systems (1971). After that, international conferences were actively held in Japan: the fifth IAEA Conference in Tokyo (1974), International Conference on Plasma Physics at Nagoya (1980) and the seventeenth IAEA Conference at Yokohama (1998) etc.

This report summarized the results of our collaborative research on history of international conference and international exchange of nuclear fusion research.

2. Content and result of this research

2-1 Search for historical documents for international conference and international exchange of nuclear fusion research

In this collaborative research for three years, we have investigated proceedings and historical documents for international conference and international exchange. These documents are collected in the followings: i) NIFS Fusion Science Archives, ii) NIFS Library, iii) NIFS Research

Information Office, iv) RIKEN (Institute of Physical and Chemical Research) Library, v) the National Diet Library, vi) Sakata Memorial Archival Library (SMAL), Department of Physics, School of Science, Nagoya University and vii) CST Nihon University Library.

2-2 Studies on history of international exchange and international conferences on plasma physics and nuclear fusion research

Based on these documents, we have studied history of international exchange and international conferences on plasma physics and nuclear fusion research. In this fiscal year, our research was focused on following subjects: “Studies on history of nuclear fusion research system at the dawn stage on the basis of historical documents in Sakata Memorial Archives Library,” “Studies on history of IAEA Conference in the 1960’s” and “Kodi Husimi’s review tour on plasma physics and nuclear fusion research laboratories in Europe and USA.” These results of our research were contributed to the scientific journals and were presented at the annual meeting of the History of Science Society of Japan, the 2013 fall meeting of the Physical Society of Japan and the annual meeting of Japanese Society for the History of Science and Technology.

2-3 Compilation of a chronological table on international exchange of plasma physics and nuclear fusion research in Japan

Continuing from the last fiscal year, we revised a chronological table on international exchange of plasma physics and nuclear fusion research in Japan. To be concrete, historical facts about international exchange between 1960’s and 1980’s were added to the table. This chronological table is being adjusted slightly for the bookbinding. It will be archived in NIFS Fusion Science Archives and Group of History of Science, Department of physics, CST Nihon University.

3. Summary and future planning

As a result of this collaborative research that has continued since 2011, we are able to clarify a lot of historical facts of nuclear fusion research on international conference and international exchange. Furthermore, we have contributed our research results to the scientific journals and made the chronological table of the international exchange on the plasma physics and nuclear fusion research field.

This collaborative research will be continued further. When new historical facts become clear, we will add them to the chronological table to aim at making more detailed one.

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