

§9. Studies on History of Fusion Energy Conference and International Exchange of Nuclear Fusion Research in Japan

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We report the results of our research on history of nuclear fusion research carried out by the cooperative research “Archival Studies on History of IAEA Fusion Energy Conference”. These results were based on the historical documents that are kept in NIFS Fusion Science Archives. In this fiscal year, we studied the efforts of nuclear fusion community in Japan 1) toward Second Conference on Plasma Physics and Controlled Nuclear Fusion Research (the Culham Conference) and 2) on invitation of international conferences to Japan in the 1960s.

1. Effort of nuclear fusion community toward the Culham Conference and its effect on the community

The Culham Conference was held in 1965. As the nuclear fusion community in Japan couldn't contribute effectively to the last conference (the Salzburg Conference held in 1961), they started quickly to prepare for the Culham Conference. Participants and papers to the Culham Conference were discussed in a selection committee in January 1965¹⁾. The selection committee was organized by 5 scientists: Taro Kihara (The Univ. of Tokyo) who was a chairman of the sub-committee of international exchange of the Special Committee of Nuclear Fusion, Kōji Husimi (Institute of Plasma Physics: IPP Nagoya Univ.), Shigeru Mori (JAERI), Tadashi Sekiguchi (The Univ. of Tokyo) and Hisamitsu Yoshimura (Nihon Univ.). Because authors of papers to be presented at the Conference overlapped with four members of the selection committee the conclusion of the committee on the selection wasn't supported by the fusion community. Consequently, the selection problem was resolved by the discussion among the community.

Two papers, “Dense plasma produced by a cusp injection” by Hiroshi Ito et al. and “Ion cyclotron resonance heating of the QP plasma” by Shigeo Nagao et al., were accepted by paper selection committee of the Culham Conference. Participants were Shigeo Nagao (the leader of Japanese delegation, IPP Nagoya Univ.), Hiroshi Ito (Osaka Univ.), Yoshinosuke Terashima (IPP Nagoya Univ.), Masahiro Yokota (Nihon Univ.), Akira Miyahara (IPP

Nagoya Univ.), Shigeru Mori, Tadashi Sekiguchi, Kosuke Okamoto (The Institute of Physical and Chemical Research: RIKEN) and Kōji Uo (Kyoto Univ.). In addition to them, Tihiro Ohkawa (GA) and Shoichi Yoshikawa (PPL) attended as the member of American group. In the conference, T. Ohkawa demonstrated the effectiveness of average minimum B by the Octopole experiment. Ohkawa's result was called “the milestone of nuclear fusion research” by L. Spitzer Jr. in the summary talk of the Culham Conference²⁾.

After the Conference, many workshops about the Culham Conference were held in Japanese nuclear fusion community¹⁾. Based on these discussions, future plan of nuclear fusion research in Japan was discussed in the secondary sub-committee of future planning³⁾ (Chairman: T. Sekiguchi) and steering committee of IPP Nagoya Univ.

2. Japanese activity for invitation of international conference to Japan in the 1960s

In the 1960s, the nuclear fusion committee in Japan discussed on invitation of international conference.

At first, Shigeo Nagao and Kōji Husimi proposed to invite the international conference to Japan in the steering committee of IPP Nagoya Univ. in 1962. Because they had visited several laboratories abroad and attended the Salzburg Conference, they proposed such an agenda. Thereafter, the discussion on the invitation of international conference was taken up in committees of nuclear fusion. After the discussions, the committee decided to adopt the proposal of invitation of the next Conference on Plasma Physics and Controlled Nuclear Fusion Research to Japan, because they expected that hosting the international conference would advertise IPP Nagoya Univ. all over the world.

Ryokichi Sagane (the chairman of the Special Committee of Nuclear Fusion of the Science Council of Japan), however, thought that Japanese fusion researchers couldn't invite successfully the international conference, because nuclear fusion research in Japan was at the twilight stage in those days. According to Sagane's suggestion, the committee turned down the proposal. Thereafter, the discussion of invitation of international conference was taken up in 1969, but the nuclear fusion community couldn't invite international conferences in the 1960s.

1) NIFS Fusion Science Archives document (ID: 219-09)

2) L. Spitzer, Jr.: Plasma Physics and Controlled Nuclear Fusion Research (IAEA, 1966) Vol.1, 3-11

3) NIFS Fusion Science Archives document (ID: 159-06-11)

4) Amemiya, T.: master's thesis, Nihon Univ. (Mar. 2009)

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