§5. The Role of Inter-University Institute for Nuclear Fusion Research in Early Period

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Introduction

The Institute of Plasma Physics (IPP, 1961-1989) was established after the intensive discussions, so-called "AB-dispute (1959)," on starting-up policies of fusion researches in Japan. It was affiliated with Nagoya University, but functioned as an inter-university collaborating institute. IPP was expected to be a center of collaborative work along A-plan, i.e., to promote the general studies of plasma physics and technology for fusion research based on Japanese universities, funded by Monbusho. We are investigating with archives the character and role played by IPP, especially in early days of fusion science in Japan.

Historical periods

The history of IPP may be roughly divided to 4 periods, and in each period there are several points of consideration to be investigated through the archival survey.

Period O (1958 ~1960) [Before IPP establishment]

Discussions prior to the institute establishment:

* What was really needed in setting-up fusion researches?
* Implementation of A-plan (fundamental and systematic studies of plasma physics) *versus* consideration of B-plan (construction and operation of sizable machine).
* Inter-university nature of university-attached institute,

Period I (1961~1973) [1st Program Plan and others]

* Rise in collaborative activities shows supports by the Nuclear Fusion Researchers' Community (NFRC, Kakuyugo Kondankai).
* Revision of institutional system and programs (~1969).
* Various supporting efforts for promoting university collaborations, by introducing Guest Professorship, Technology Division, Computer Facility, etc.
* Correspondence to the fusion-oriented developments, including comprehensive missions along B-plan (funded with Atomic Energy budget).
* Contributions to the graduate school course education.

Period II (1974~1980) [2nd Program Plan]

* Programs performed individual universities were promoted, resulting in plural centers of fusion researches.
* The 2nd Program Plan of IPP was given: keV-plasma confinement, relativistic plasma, multi-path approach to fusion. Basic physics studies with objective target of fusion research were stressed.
* Inter-university institute to be either a key station of collaboration works or a central leading institute.

Period III (1980~1989) [3rd Program Plan]

* Expansion of the related fields of science, especially including reactor technology, became indispensable.
* Approach to reacting plasma, implying larger machine size and budget as a big science, came into scope.
* Importance of international collaboration efforts, as well as domestic, grew up.
* Tasks and scales of inter-university institutes were discussed again.

Characteristics of inter-university institutes

As the key-station of A-plan, IPP had organized and carried out a number of collaborative activities with the nation-wide researchers, as well as its own programs. The trend of collaboration works is given in Fig. 1. IPP had in principle been operated by researchers themselves to get better circumstances for the fusion research and development in Japan. Starting with collaborations on basic plasma physics, the institutional Program Plans became much more projective in style in reflection to the general development of fusion science. The idea of an inter-university institute attached to a specific university was reconsidered and transferred to a new inter-university institute, NIFS, independent of existing specific university. In the same category are KEK in high-energy physics and IMS in molecular science, with which we would like to make further comparison studies.

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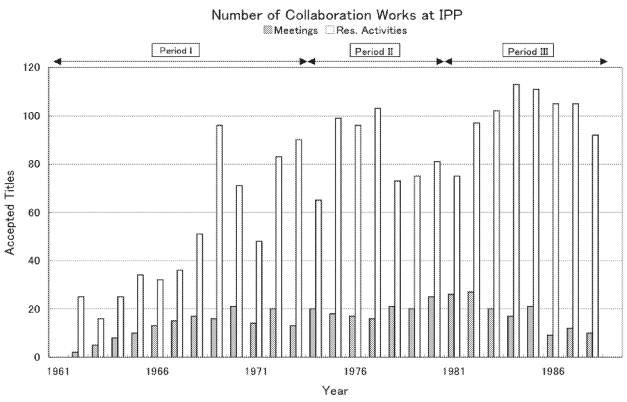

Fig. 1 Collaborations developed at IPP