7. Network-Type Collaboration Research

The NIFS General Collaboration has been basically based on a one-to-one (especially, NIFS-to-University) collaborative system. Some collaborations, however, require the use of more than one experimental facility in different universities and institutes to achieve their objectives. In the network-type collaboration, this type of collaboration becomes practicable by admitting travel expenses for moving between universities, which have not been admitted as a rule in the general collaboration projects.

Since FY 2011, NIFS has employed this network-type collaboration. Three projects of the different fields were accepted in FY 2011 for the first time. Challenges in these collaborations spread over various fields. Before starting the collaborations, a collaboration plan for the year should be submitted. The plans include the items how the collaborations between research institutes are planned, that is, who goes when and where by what purpose.

In this fiscal year, eight proposals were submitted and six were accepted. The titles of the research items are listed below.

(1) "Effect of the resonant magnetic perturbation on MHD phenomena of toroidally magnetized plasmas" M. Okamoto (National Institute of Technology, Ishikawa College)
(2) "Hydrogen isotope retention of plasma facing materials damaged by neutron irradiation" N. Ohno (Nagoya University).
(3) "Interdisciplinary study of plasma heating at O-point and X-point using laboratory experiments, numerical simulations and solar observations" M. Ono (The University of Tokyo).
(4) "Comprehensive Understanding of Plasma Flow by Creation of a Basic Plasma Network" T. Kaneko (Tohoku University)
(5) "Tritium, radon and radium concentrations in environmental water samples in Japan" M. Hosoda (Hirosaki University)
(6) "Construction of gyrokinetic simulation research network" T. Watanabe (Nagoya University)

The items (1) to (3) are continuing items and others are new items in FY2018. The items (1), (3) and (4) are related to the intercommunication of researchers and students, and are the comparative researches of the results obtained in the different devices in universities, institutes, and NIFS.

The item (2) is related to the inspection of neutron-irradiated materials by utilizing the compact divertor plasma simulator (CDPS) installed at the Oarai Center of Tohoku Univ. The item (5) requires the movement of researchers and students over wide areas to collect samples in different places. The item (6) is related to construct a simulation research network to enhance the simulation research activities using gyrokinetic codes in Japan.

And all proposals take advantage of the merit of the network-type collaboration.

(S. Masuzaki)