1. US–Japan (Universities) Fusion Cooperation Program

The 35th U.S.-JAPAN Coordinating Committee for Fusion Energy (CCFE) meeting was held on March 18 2015 via televideo conference system. The representatives from the MEXT, the DOE, Universities and Research Institutes both from Japan and U.S. participated in the meeting. At the meeting, current research status of both countries were reported together with presenting bilateral technical highlights on collaborations. The 2014 cooperative activities were reviewed, and the FY 2015-2016 proposal was approved. It was noted that both sides have developed significant and mutually valuable collaborations involving all technical elements of the fusion energy sciences program, and also discussed about the bilateral programs and multi-lateral activities. Thus, the both sides agreed the usefulness and necessity of the continuation of the Joint Activity.

Fusion Physics Planning Committee (FPPC)

The annual meeting of the FPPC was held via e-mail communication during the period of January 23 - March 11, 2015. In the area of fusion physics, 2 committee meetings, 9 workshops were held, and 3 workshops and 14 personal exchanges were implemented from JA to the US. Also 3 Workshops and 4 personal exchanges from the US to JA were completed. Compared to the initial plan, 5 personal exchanges from JA to the US were not executed due to the lack of funding and time scheduling. One workshops from JA to the US was deferred to FY 2015. The workshops were successfully held, and the exchanges continue to be productive and beneficial to the both sides.

The total number of proposed activities is 33, which consists of 2 Committees, 9 Workshops and 22 personel exchanges.

Joint Institute for Fusion Theory (JIFT)

Almost all of the activities in the two categories workshops and personal exchanges - were carried out during the past year.

In addition to the JIFT Steering Committee meeting, four workshops were successfully held. In the category of personal exchanges, two Visiting Professors and eleven Visiting Scientists made exchange visits. At the JIFT Steering Committee meeting that was held at New Orleans on November 1, 2014, the status of JIFT activities for 2014-2015 was reviewed and the recommendation plans for 2015-2016 were discussed. The JIFT discussion meeting was held at TOKI on September 11, 2014, in the Plasma Simulator Symposium. The information of the JIFT program is released at both of the US and Japanese JIFT web sites.

Fusion Technology Planning Committee (FTPC)

Personal exchange programs are continued in 6 research fields, namely, superconducting magnets, low-activation structure materials, plasma-heating technology, blanket engineering, high-heat flux components, reactor design & others. Of the 16 planned cooperative items related to the general technology joint planning categories, 11 were completed as follows: 4 workshops/technical meetings and 7 personnel exchanges.

US-Japan Joint Project : PHENIX

In terms of joint collaboration project, PHENIX, for Task 1, heat transfer studies with the He-cooled divertor with multi-jets (HEMJ) using the test section like divertor at 10 MPa He pressure and temperatures of 300°C or less with variable gaps were performed in the Georgia Institute of Technology (GT). Heat flux was raised with the help of RF induction heater to about 6.6 MW/m2. High heat flux testing studies with a new designed specimen holder to reduce oxidation with vacuum plasma spray (VPS)-tungsten on F82H were performed by 4 MW/m2 plasma arc lamp (PAL) facility at Oak Ridge National Laboratory (ORNL).

For Task 2, RB* neutron irradiation capsule design is in progress at ORNL. Thermal neutron shield is the most notable feature of this design, unique in PHENIX. Rabbit capsule irradiation is also underway.

For Task 3, tritium permeation tests for pure W using Tritium Gas Absorption Permeation (TGAP) experiment system and modification of Tritium Plasma Experiment (TPE) for remote operation are underway at Idaho National Laboratory (INL). Deuterium permeation study using pure W above 900 K is planned at Sandia National Laboratory California (SNL-CA). Tungsten specimen preparation and characterization before irradiation are in progress at Tohoku University.