

§25. Promotion of Cooperation among Plasma-related Interdisciplinary Sciences

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Purpose

Plasma is ubiquitous in the universe, and its nonlinearity and non-equilibrium properties provide attractive topics in research of basic science such as physics, astrophysics, and mathematics. Moreover, plasma science is also a fundamental science of wide variety of applied research including nuclear fusion, nano-process, medical application, and so on. Close linkages among the related research fields are desirable for breakthrough of the plasma science and for creation of new scientific fields. The Region 2 (DPP: Division of Plasma Physics) in the Physical Society of Japan (JPS) is one of the most active society in the field of plasma physics in Japan. The committee of DPP-JPS set a goal to promote scientific collaboration among related scientific communities, and has been providing opportunities to communicate with researchers distributed to wide variety of fields.

Activities

In this fiscal year, DPP-JPS mainly hosted Plasma Conference 2014 [1] held in 18 – 22 November in Toki Messe, Niigata with two co-hosts (the Japan Society of Plasma Science and Nuclear Fusion Research (JSPF) and the Japan Society of Applied Physics (JSAP)). The purpose of the Plasma Conference is to promote further progress of plasma science through comprehensive understanding research activities in plasma science and application which have been developed in a number of distributed societies and institutes.

In order to arrange the conference program for conference participants to discuss wider variety of topics, a meeting was held in August at NIFS. Participants consisted of members from related societies, such as the DPP-JPS, JSPF, JSAP, Society of Geomagnetism and Earth, Astronomical Society of Japan, Institute of Electrostatics Japan.

In the conference, the number of participants was approximately 800 including foreign researchers. Wide variety of topics including plasma physics, fusion engineering, astrophysics, nano-process application, and medical application were presented. They were actively

discussed and related information was exchanged not only in each research field but also across different research fields. In addition, as a feature of this conference, lecture courses for beginners were also held, and it was well-received especially by young researchers and students. Based on the success of this Plasma Conference 2014, 3rd Plasma Conference has been planned to be held in 2017 hosted by JSAP.

One of the other important activities was to manage the annual meeting of JSP. Since the last fiscal year, the “Non-Equilibrium and Extreme State Plasmas” session was held as a special session in order to discuss dynamics of plasmas from viewpoint of non-equilibrium and extreme state of matters. This session covered the linear device experiments, magnetically confined plasmas, laser plasmas, high pressure plasmas (warm dense matter), and industrial application. The committees of DPP-JPS decided to continue to hold this session for coming a few years.

In order to intensify the activities further in the future, it is important to support and encourage young scientists and students. Two programs are individually operated in DPP-JPS. One is selection of JPS Young Scientist Award in the field of DPP. Two young scientists got this award from DPP-JPS in the fiscal year 2014. The other is the Best Presentation Award for Students, which is an original program in DPP-JPS. These programs are carried out every meeting (Autumn and Annual) of JPS-DPP. Many students applied this award, and five students got the award in the annual meeting in March 2014. The information of these awards is reported via web page [2].

Summary

It is very important mission of DPP-JPS to promote collaborative activities among scientists in wide variety of research fields through providing opportunities for presentation and discussion of their scientific results. The training and encouragement of young scientists and students are also important missions. It is necessary to discuss the management policy and action plan of the DPP-JPS with collaborators from plasma-related societies. In this fiscal year, such activity was operated as a collaborative research of National Institute for Fusion Science, and it contributed to successful management of Plasma Conference 2014 and JPS meeting. Further continuous effort to establish future strategy of the DPP-JPS and plasma-related societies are important.

[1] <http://www.jspf.or.jp/PLASMA2014/jpn/index.html>

[2] <http://www.r2.div.jps.or.jp/>