

§30. Bridge Over Plasma-related Interdisciplinary Sciences

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Purpose

Plasma science is defined as a fundamental science covering wide field including nuclear fusion, space plasma, astrophysics, nano-process, medical application of atmospheric pressure plasmas and mathematical physics. In order to encourage plasma science itself and cross-field linkage with related scientific communities, it is necessary to organize a network of scientists in this field. 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 committees of DPP-JPS operated this collaboration as one of main actions of DPP-JPS and supplied opportunities to communicate between related scientific communities.

Activities

The committee of DPP-JPS have communicated with other societies related to plasma physics, and the most important subject in this fiscal year is preparation of Plasma Conference 2014. The Plasma Conference was held at Kanazawa city at 2011 for the first time with more than 1000 participants [1]. Based on the success of 1st Plasma Conference, Plasma Conference 2014 have been planned to be held at Niigata at November 2014 hosted mainly by DPP-JPS. In order to discuss topics, program arrangement, support program for students and participants from companies, an interdisciplinary meeting including members from the DPP-JPS, the Japan Society of Plasma Science and Nuclear Fusion Research, the Japan Society of Applied Physics, Society of Geomagnetism and Earth, Astronomical Society of Japan, Institute of Electrostatics Japan was held at NIFS. It has been agreed that the scientific program is unified through the conference in order to promote cross-field communications, although the conference will consist of three meetings of the societies: the DPP-JPS, the Japanese Society of Plasma Science and Nuclear Fusion Research and the Japanese Society of Applied Physics. We have come to agreements to program for students and young scientist, such as young scientist award, lecture course for beginners, which may characterize the conference. For the nomination of invited talk and symposium, the regulations of JPS are applied, which prohibits self-nomination and overlapping of affiliations of

speakers in one symposium. This regulation will promote symposium with broader subjects/interests than specific one or organized only by large projects.

To support and encourage young scientists and students, two programs were individually operated in DPP-JPS. One is selection of Young Scientist Award of the physical Society of Japan in the field of DPP [2]. Two young scientists got this award from DPP-JPS in 2013. The other is the Best Presentation Award for Students, which is an original program in DPP-JPS. This program was operated every meeting (September and March) of JPS-DPP. Many students applied this award, and four students got the award in Autumn meeting 2013 and annual meeting 2014. The information of these awards is reported via web page [3].

A session style was newly proposed by the chair of DPP-JPS committee (H.Y.), in which sessions related to special topics will be planned by DPP-JPS member and the planner will organize the session program with the help from committees. For the first call of the new session, a proposal was accepted and the "Non-Equilibrium and Extreme State Plasmas" session was held in Autumn meeting 2013 and annual meeting 2014. Total 43 presentations were submitted in this session. The linear device experiments, magnetically confined plasmas, laser plasmas, high pressure plasmas (warm dense matter), industrial application plasmas were discussed in this session from viewpoint of non-equilibrium and extreme state of matters. This session will be continued and is challenging to open a new frontier of plasma physics.

Summary

It is very important mission of DPP-JPS to promote collaborative activities between scientists, to supply the opportunities for presentation and discussion of 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. In the fiscal year 2013, this program was operated as a collaborative research of National Institute for Fusion Science and the very important achievements such as preparation of second Plasma Conference were obtained. Further discussion and continuous effort are important to establish future strategy of the DPP-JPS and plasma-related societies with strong inter-society collaboration.

[1] <http://www.jspf.or.jp/PLASMA2011/jpn/>

[2] <http://www.jps.or.jp/activities/awards/wakate.html>

[3] <http://www.r2.div.jps.or.jp/index.html>