

Preface of the APFA2009

The 7th General Scientific Assembly of the Asian Plasma and Fusion Association (APFA2009) was successfully held in Aomori, Japan, during October 27-30 2009. The meeting was held jointly with the APPTC while keeping reasonable independence of each organization.

The APFA is administered by the Board of Directors composed of Asian four countries, China, Korea, India and Japan. The purpose of the APFA is to organize Asian scientists and engineers working in plasma and fusion science and engineering fields, and to discuss various issues in the wide range of interests. It also includes to exchange information, to strengthen friendships, and to train young researchers.

The APFA/APPTC meeting in Aomori covered full four days for discussion sessions, and technical tours to Rokkasho. The total number of the participants was 275, and 214 invited and contributed papers were presented. A special lecture on the B-factory of the KEK was made by Prof. H. Takasaki. The Aomori meeting was characterized by the three points. First, the meeting key word was "Integration of Elements". Nowadays, many researchers intend to engage in highly specialized fields while very few are interested in the integration of knowledge in different specialties. However, with a progress of science and technology, the "integration" of knowledge becomes much more important to the development and the success of advanced, complicated, sophisticated devices, systems or even in the fundamental science. The Session for "Integration of Elements" was oriented for this purpose. Second, a special session "Role of Fusion in Energy and Environmental Problems" was programmed. It was intended to know how each country or community is trying to engage in these important issues, and to know how is the fusion trying to contribute? Third, in line with the discussion at the APFA Board Meeting in Geneva in 2008, the APFA has granted Young Scientist Award to encourage two outstanding young researchers selected out of the 80 candidates, which is the first attempt by the APFA.

It is our great pleasure to know that the proceedings of the scientific papers have now been published as one of the Journal of Plasma and Fusion Research SERIES from the Japan Society of Plasma Science and Nuclear Fusion Research (JSPF). On behalf of the APFA, I wish to sincerely express my thanks to all the participants, international and local committee members, voluntarily supporting staff of Hachinohe Institute of Technology and Tohoku University and funding agencies and organizations that have led to the success of the Aomori Meeting.

International Advisory Committee
for the 7th APFA, Chair
Shinzaburo MATSUDA

Preface of APPTC2009

It is our great pleasure to inform that the publication of the papers presented at the 7th General Scientific Assembly of the Asia Plasma and Fusion Association (APFA2009) and the 9th the Asia-Pacific Plasma Theory Conference (APPTC2009) jointly held in Aomori, Japan, during October 27-30 2009, has been completed as one of the Journal of Plasma and Fusion Research SERIES published by the Japan Society of Plasma Science and Nuclear Fusion Research.

The first APPTC conference was held in Korea in 1996, and then subsequent conferences were held annually or biannually in the Asia-Pacific countries over the last thirteen years. The conference covers a broad range of research topics in theoretical and computational plasma physics related to magnetic and laser fusion, basic plasma physics, as well as space and astrophysical plasma phenomena. An important aim of the APPTC conference is to provide a forum for the exposition and exchange of the latest research and development results in plasma science in the Asia-Pacific region.

In APPTC2009-related sessions, 55 papers including 10 invited talks, 13 contributed oral talks and 32 posters were presented on the topics of theoretical and computational plasma physics, while 223 papers were presented, in total, at the joint conference. This number may suggest that, indeed, this joint conference with a focus on “*Integration of Elements of Science and Technology toward Realization of Fusion Energy and Other Plasma Applications*” was quite effective and successful.

I am much grateful to all the members of the International Advisory Committee for their strong cooperation on the APPTC2009. I would deeply thank the International Program Committee, and the Publication Committee for their collaboration. Also, the funding from various agencies, organizations and companies is highly appreciated. Finally, I would express my sincere appreciation to the members of the Local Organizing Committee for APFA2009/APPTC2009 for preparing, arranging, and all other administrative works in making the joint conference quite successful.

International Advisory Committee
for the 9th APPTC, Chair
Ritoku HORIUCHI

Preface

The world fusion research is now in a new era, namely, ITER-era. The ITER is being constructed in Cadarache, France as the world's largest scientific collaboration. At the same time, Broader Approach activities have been launched in Japan under the international framework aiming at complementing the ITER project and at an early realization of fusion energy. It is my great pleasure to report that the 7th General Scientific Assembly of the Asia Plasma and Fusion Association in 2009 (APFA2009) and the Asia-Pacific Plasma Theory Conference in 2009 (APPTC2009) were successfully held in Aomori during October 27-30, 2009 with 275 attendees from 13 countries, and a technical tour was held with a lot of attendees to visit Rokkasho, where International Fusion Energy Research Center has been established as a center of the Broader Approach activities.

It is also my great pleasure that the scientific papers have now been published as one of the Journal of Plasma and Fusion Research SERIES from the Japan Society of Plasma Science and Nuclear Fusion Research.

On behalf of the Local Organizing Committee, I wish to sincerely express my thanks to all the participants, International and the Local Organizing Committee members, and voluntary supporting staff of Tohoku University, Hachinohe Institute of Technology, and Rokkasho Research Center of National Institute of Fusion Science. Thanks are also due to Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT), Aomori Prefecture, Aomori City, and Rokkasho Village for their funding and various support.

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