

Asia- Round Table for Condensed Matter Physics in Asia-Pacific

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1. Scope and format of the workshop

Condensed Matter Physics is one of the major parts of physics that covers a wide range of disciplines. It is constantly developing with strong interactions with various scientific areas and contributes to the expansion of human knowledge and the developments of society. In the Asia-Pacific region, research and education in condensed matter physics are actively studied, and exchanges of personnel and knowledge are becoming more active across the region year by year and global international exchange.

Given this situation, there is a strong need to form an organization representing the scientific community for systematic and continuous exchanges to further develop condensed matter physics in the Asia-Pacific region. The round table was planned to establish the organization to conduct the regional international exchange. In the original form, it was planned to be held at Sendai in the mid November. Due to the covid-19 pandemic, we organized it as on-line meeting and we also split it into two successive meetings-the pre-meeting for wide range of discussions and the round table for the finalization for the community formation.

2. Discussion in the preparation meeting-December 2nd

In the preparation meeting, we had about 10 participants from 5 associations related to condensed matter physics. The members are gathered through the collaboration with Physical societies in the region. There was an discussion on the current situation of the regional exchange. In the Asia-Pacific region, there are several regional organizations related to the condensed matter physics. The biggest organization is the Association of Asia Pacific Physical Societies (AAPPS), which was funded at 1990 at Seoul. In the neutron scattering community, the Asia-Oceania Neutron Scattering Association(AONSA) including seven neutron societies was established in 2012. The Asian Union of Magnetism Societies(AUMS) was established in 2009 with four national societies on magnetism. In the synchrotron radiation research community, the Asia-Oceania Forum for Synchrotron Radiation Research (AOFRR) was established in 2006 with 11 members at present. There is also the Asia-Pacific Center for Theoretical Physics(APCTP). The primary aim of the APCTP was to build a hub-institute of theoretical physics in the Asia-Pacific region to facilitate collaboration and exchange of scientists and to provide a platform for scientists of less advanced region. The importance to establish an solid organization was highlighted through the discussion.

The second point of the discussion was about the areas which should be included in the division. The condensed matter physics has the large diversity in the research fields such as magnetism, strongly correlated electrons and superconductivity, semiconductors, optics and laser physics, quantum information, statistical physics and theoretical condensed matter physics, high magnetic fields, low temperature physics, molecular solids, surface & interface, crystal growth, soft-matter, chemical physics and biophysics, material physics and others. The centers of the activities varies among associations and thus it is not easy to decide which areas should be focused. The participants agreed to establish the comprehensive condensed matter physics organization which includes all areas at the starting point and to allow the spin-off of some area, if the activity becomes substantial.

In the last part, the discussion was made on the by-law and the format of the decision body. Participants agreed that the consensus building is the basis of such organization and the council consists of the representatives of the each domestic organization is the place to handle the organization, rather than a president elected from the voting



by the members. It was also agreed that the organization could be formed as a division of condensed matter physics in the AAPPS. AAPPS was originated from the first Asia-Pacific Physics Conference(APPC), held in Singapore in 1983, to create an association of physical societies aimed at the promotion of physics in the Asia Pacific region. In 2012, AAPPS made bylaws for divisions. At APPC12 in Makuhari, Japan, the Division of Plasma Physics (DPP) was established. This was the first step allowing AAPPS to have an arena to promote specific fields of physics as in national physical societies. This launch was followed by the establishment of Division of Astrophysics, Cosmology, and Gravitation (DACG), and the Division of Nuclear Physics (DNP). As such, the AAPPS provides the mechanism to form the platform of each research area in physics. It should be also noted that both Physical Society of Japan and the Japan Society of Applied Physics(JSAP) participate in the AAPPS from Japan. In fact, APPC14 in 2019, the participants from condensed matter communities have agreed to organize meetings toward division formation in condensed matter physics. Since then, the representative

of condensed matter communities of Japan, Korea, China, Taiwan, India have formed the working group aiming at the formation of condensed matter platform.

3. Round table meeting-December 4th

In the round table meeting, we had representatives from associations of physics of Japan, Korea, China, India, Taiwan and an observer from the JSAP. In the beginning, there are reports on the status of condensed matter physics in each association. The report includes the organization, history, divisions structure, research areas, meetings, related research institutes, large scale facilities, national research programs and others. It was the good opportunities to understand the status of the condensed matter physics in the Asia-Pacific region.

The report was followed by the presentation of the consensus made at the preparation meeting. The major points of the discussions were, the by-law, organization, membership, committee member, webpage, registration, declaration of the founding, application to AAPPS, action plan, meeting, and how to select Chair etc. The discussion was made in very friendly atmosphere and the foundation of the division was agreed by the participants.

Finally, the round table agreed to establish the condensed matter physics division at January 1st, 2021. This activity was followed up by voluntary actions from condensed matter physics communities across the region. Many contributors have been continuing discussion to form the Division of Condensed Matter Physics, despite the difficult situation due to the coronavirus in most of 2020. It is the significant steps toward the formation of the regional community. The Division will promote the progress and disseminate condensed matter physics knowledge and its application through research presentations, exchange of knowledge, and corporation among members and other academic societies. It thereby aim to contribute to the development of academic research. It will cover the diverse research fields of condensed matter physics.

The GIMRT support for the workshop was extremely useful as an opportunity to revitalize regional international exchange in condensed matter physics.