

## KINKEN-WAKATE 2017: New Frontier of Molecular Materials

International conference for young researchers, New Frontier of Molecular Materials, were held at IMR auditorium on Sep. 29-30, 2017, as the post-conference of ISCOM2017. More than 60 researchers including students studying molecular materials attended. Three tutorial lectures on physics, theory, and chemistry were given, including 26 oral and 15 poster presentations.

New Frontier of Molecular Materials (NFMM), for young researchers, were held as KINKEN-WAKATE of this fiscal year at auditorium in IMR on Sep. 29-30. Three prominent professors, Prof. M. Dressel for physics, Prof. V. Dobrosavljevic for theory, and Prof. H. Mori for chemistry were invited for tutorial lectures for students and young researchers. Starting with the historical talk about IMR and KINKEN-WAKATE by Prof. H. Fukuyama, 26 oral and 15 poster presentations were made with active and fruitful discussions for the two days. Various discussions among researchers across generations and research fields were held in the evening session currently with poster presentation. The participants included 23 students, 19 young and 11 senior researchers, 8 professors.

There are two purposes of NFMM. One is to provide opportunities of oral presentation for young researchers, and the other is to promote comprehensive understanding of organic material from basic to advanced problems. 26 oral presentations were selected, which were divided into 7 sessions, including various experimental and theoretical works covering almost all the fields in the molecular material science; phase transitions and its control, charge frustrations and its slow dynamics, exotic phenomena such as ferroelectricity, superconductivity, and Dirac electrons, and problems of electronic correlations including  $\pi$ -d and spin-orbit interactions.

Research on molecular materials is roughly divided into three fields: physics, chemistry, and theory. Their close cooperation has greatly contributed to the development of this field. For this reason, prominent lecturers for pedagogical talk were selected to cover many fields. Prof. M. Dressel lectured on the physics of molecular materials from free electron gas to Mott-Hubbard transition with appropriate optical spectrum, including recent topics in correlated electrons system.

Prof. V. Dobrosavljevic lectured on theories used in strongly correlated electron systems, especially for dynamical time scale and special range of interactions with frustrations and randomness comparing with several methods. Prof. H. Mori introduced the chemical properties in relation to hydrogen, which are used in the engineering and sometimes causes problems, including recent discoveries of ferroelectrics due to hydrogen bonding and its fluctuations.

Prof. B. Powell provided the summarized talk of the conference, in which many suggestive insights were given for the young researchers referring to old and newly discovered problems, advantages and disadvantages in the field, and perspectives. With closing remarks by Prof. J. Müller, the conference ended successfully.



Fig. 1 Group photo in front of the building 2 in IMR.

### References

- [1] URL of NFMM web site:  
<http://www-lab.imr.tohoku.ac.jp/~nfmm/index.html>