

Flavor Physics Workshop 2018

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We held the Flavor Physics Workshop 2018 at the Kavli IPMU from October 30 to November 2, 2018. This series of workshops started in 2008 with one major motivation: to provide young students and researchers a good opportunity to get an overview of flavor physics so that they can develop their future research plans in particle physics. This year the workshop had 36 graduate students and 28 postdocs and faculty.

The workshop program is regularly composed of lectures by invited lecturers and presentations by applied participants. Since the Belle II experiment with all sub-detectors installed will start data-taking early next year, as the first feature topic of the lectures, we chose the physics cases in which the anomaly from the SM prediction is becoming significant; flavor physics experiments should promptly work on these physics cases to reveal the theory behind the nearly-significant anomalies. As for theory, three very pragmatic lectures were

given covering the anomalies in $b \rightarrow s \ell^+ \ell^-$ and $b \rightarrow c \ell^- \bar{\nu}$ transitions, lepton flavor violation, and anomaly in the muon EDM (electric dipole moment). As for experiments, four lectures that are useful to the attendees for promptly reaching results with the analysis of data from a flavor physics experiment were given covering the precise measurement of the CKM matrix elements, measurement of the branching fraction of rare B -meson decays, and lepton flavor violation and CP violation measurement with the τ -lepton decays. In addition, as the second featured topic, we chose the prospect of future projects in particle physics. Two lectures regarding the second topic were given; one summarized the activities in neutrino experiments and underground experiments besides flavor physics experiments, and the other explained expectations for those experiments for revealing the nature of dark matter. Besides those lectures, three introductory lectures about

particle physics and experimental apparatus were given at the beginning of the workshop, and there were 12 lectures in total.

We had 23 oral and 12 poster presentations covering both theory and experiment from the applied applicants. Three recipients, Mr. Okui (Niigata Univ.), Mr. Kamiji (Kyoto Univ.), and Mr. Harada (Okayama Univ.), were elected by vote for best talk in theory, best talk in experiment, and best poster, respectively. They received an award certificate with an autographed copy of Prof. Murayama's book as well as a T-shirt with the Kavli IPMU logo.

We observed active and free discussion throughout the workshop, and we believe the workshop was an enjoyable event for most attendees. We are looking forward to the next workshop, which will be scheduled after the start of Belle II with all sub-detectors installed, and which will no doubt be as exciting as this year.

