

Research Report

ICRR Inter-University Research Program 2022

Research Subject:

Kashiwa Dark Matter symposium 2022

Principal Investigator:

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Summary of Research Result :

The 4th Kashiwa Dark Matter symposium took place from November 29 to December 2, 2022. The symposium was conducted as a hybrid event with the onsite part taking place at the Kashiwa Library Media Hall at the University of Tokyo Kashiwa Campus. The symposium lasted over two full days (Wednesday and Thursday) and two half days (Tuesday and Friday). No conference fee was charged for online participants, and small fee over 2000 Yen for onsite participants.



Figure 1: Group picture

Central access point of the symposium was the webpage <https://2022.kashiwa-darkmatter-symposia.org/> with program and registration. The talks and oral discussions were held both on-site and Zoom (webinar mode), and the coffee breaks

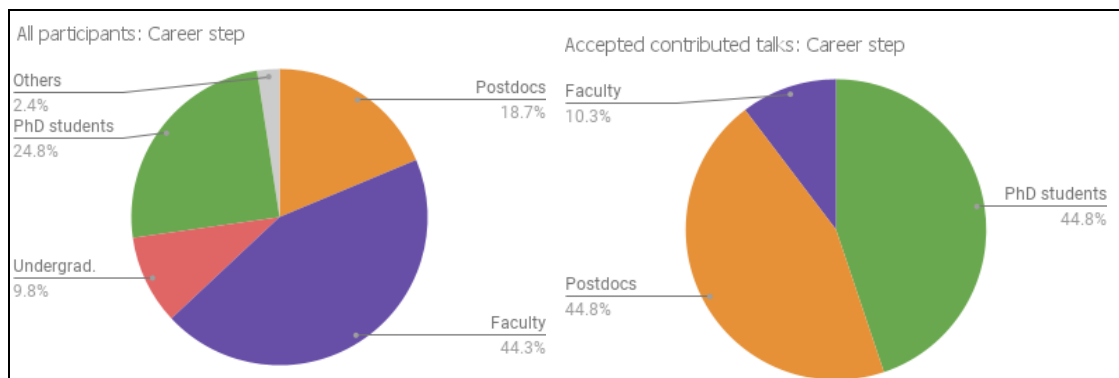


Figure 2: Participants statistic

and poster session using the Gather.Town tool. In order all participants to watch the talks after the symposium, we recorded most of the oral talks and uploaded them on YouTube (but unpublic). As in 2021, the symposium was received highly positive. 250 people registered from 30 countries worldwide (see webpage for details and Fig. 1). 138 registrants (55%) were affiliated to Japanese institutions. 25% of all registrations were graduate students, 19% Postdocs, and 44% faculty staff (rest “other”, see Fig. 2). 18% of all registrants were female. 60 people participated on-site (due to the COVID-19 measures from The University of Tokyo, on-site participation was limited to 60 people), while 190 online participants had formally registered. Due to the slightly extended time schedule, we could invite this time 15 distinguished highlight speakers (compared to fourteen in 2021). We allocated 28 contributed talks of 10 minutes length each. In addition, we had 32 poster presentations (in total we received 70 contributed talk or poster submissions). Comparing to the last years, the ratio of young students (about 45%) increased, and we wish to do more advertisement in the future to increase the fraction. The program included recent updates from the Dark Matter searches in the different fields. Special focus was drawn to search for light Dark Matter from the keV scale down to μeV and beyond, including theoretical aspects and recent developments of detector technologies. In the Indirect Detection session, besides high-energy gamma-ray searches, attention was drawn on new search strategies at lower photon energies from MeV to radio emission. In the Direct Detection session, both latest noble gas and cryogenic detection efforts were discussed. In the collider session, measurements with the LHC were presented. In the Astrophysics and Cosmology session, we discussed both near-field (dark matter substructures by Gaia) and observational cosmology (dark matter distribution at $z\sim 4$ by Subaru HSC). The theory session opened the symposium with a focus on WIMPs and Axion-like particles. Based on 24 responses received so far, feedback was again positive, with rating the symposium in average with 4.8 points out of five.