

International workshop on “Hadron physics with Kaon beam and related topics”

F. Sakuma*¹ for the Workshop Organizer

The international workshop on “Hadron Physics with Kaon Beam and Related Topics” was held online on October 3–4, 2022. It was organized by RIKEN Nishina Center and Grant-In-Aid for Specially Promoted Research “Toward revolutionary Nuclear Study via revealing Internal Structure of Kaonic Nuclei” (MEXT Kakenhi 22H04917), and supported by Hadron Hall User Association (HUA), KEK Theory Center, RCNP, ELPH, and JAEA ASRC.

The workshop focused on the recent experimental and theoretical developments in kaon interactions with nucleons and nuclei, particularly those activities using the unique kaon beams available at J-PARC and DAΦNE. The topics covered by the workshop were:

- kaonic nuclei
- $\Gamma(1405)$
- kaonic atoms
- kaon-nucleon scattering

The workshop was held fully online using Zoom, which included 82 participants from 10 countries, with 27 participants from abroad. The scientific program comprises plenary sessions held by invited speakers. The structure of the sessions was set to be accessible to Asian and European participants. Sessions on both days ran from 16:00 to approximately 23:00 Japan time, with lunch (dinner) breaks as reported in Table 1. A screenshot of participants is shown in Fig. 1.

Table 1. Timetable of the workshop.

Oct. 3	JST		
	16:00	17:30	opening & theoretical overview
	17:30	17:45	break
	17:45	19:15	kaonic-nuclei
	19:15	20:15	dinner/lunch break
	20:15	21:45	kaonic-nuclei
	21:45	22:00	break
	22:00	23:00	$\Lambda(1405)$
Oct. 4	JST		
	16:00	17:30	lattice QCD & $\Lambda(1405)$
	17:30	17:45	break
	17:45	19:15	$\Lambda(1405)$ & kaonic-atoms
	19:15	20:15	dinner/lunch break
	20:15	21:45	kaonic-atoms
	21:45	22:00	break
	22:00	23:40	$K^{\text{bar}}N$ scatt & closing

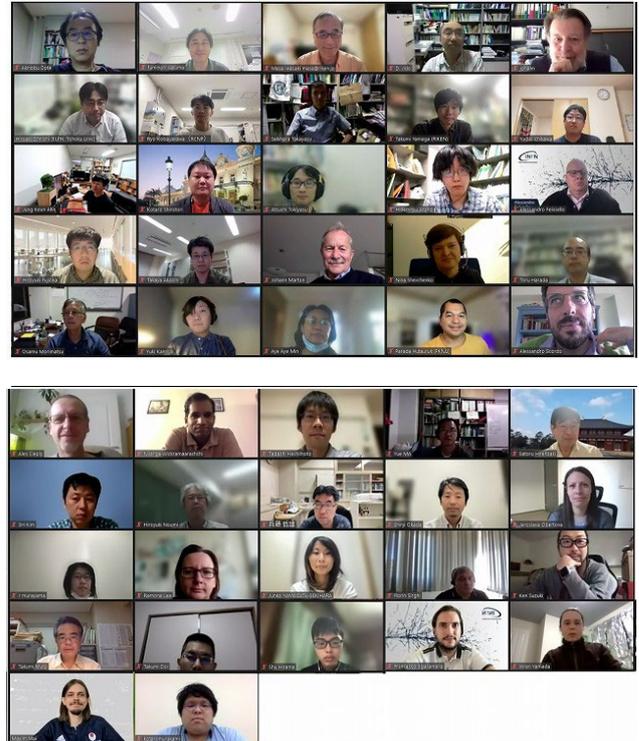


Fig. 1. Screenshot of online participants.

There were 24 talks, including opening and closing remarks. The session began with the theoretical overviews of low-energy kaon physics, which is an important probe to understand low-energy QCD. Following that, the latest results and future experimental prospects at J-PARC, DAΦNE, SPring-8, and LHC, as well as the latest theoretical developments, were presented. There, discussions were given on the recent major topics of kaonic nuclei and atoms, $\Gamma(1405)$, and $K^{\text{bar}}N$ scattering, including the latest topics on lattice QCD calculations. The full program and presentation files are available online at the workshop website.¹⁾

Following the success of the workshops, we are planning to conduct a second workshop around FY2024-25 to continuously discuss physics at the J-PARC and related facilities.

Reference

- 1) <https://kds.kek.jp/event/43204/> (Access key required).

*¹ RIKEN Nishina Center