## Cosmic ray measurement workshop for junior and senior high school students at RIBF

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On August 29th, 2023, a Cosmic Ray Measurement Workshop for junior and senior high school students at RIKEN was held in collaboration with Accel Kitchen LLC.<sup>1)</sup> This workshop marked the second consecutive year following the event in 2022. Last year, owing to Covid-19, participants attended online, and the staff streamed measurements conducted at RIBF. In 2023, the event was held on-site at the Nishina Center the for the first time.

A total of 44 participants ranging from first-year junior high school students to third-year high school students attended the event, with a female participation rate exceeding 50%. In the morning, participants were divided into small groups of approximately five individuals each and assembled their own cosmic watch detectors.<sup>2)</sup> Staff from Accel Kitchen (two junior high school students, one high school student, two university students, one graduate student, and one faculty) primarily provided support during the detector assembling, as shown in Fig. 1. In addition, participants joined a tour to RIBF facility such as SRC, BigRIPS, SAMURAI, SHARAQ, and Rare-RI Ring during breaks in the detector assembling. In the tour, there was an exchange of sharp questions from both



Fig. 1. A photo of the workshop, depicting participants assembling a Cosmic Watch under the guidance of student staff at the RIBF 2F Large Meeting room.

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participants and Accel Kitchen student staff, rendering it a very successful tour. After lunch, participants conducted measurements using the detectors assembled by themselves, focusing on themes of their choice within the RIBF building. Subsequently, each group presented their measurement results and discussed their findings. They presented using graphs the variation in detection rates based on factors such as angles, number of floors in buildings, shielding effect of materials, etc., and exchanged their own interpretations. Although certain groups did not obtain the expected results because the experiments were not as carefully planned as those typically conducted in school laboratories, this prompted deeper reflections and discussions. The workshop concluded with an introduction on support activities by Accel Kitchen LCC in particle physics for junior and senior high school students from the student staff, who are also participating in the research activities.<sup>3)</sup>

This event provided an unparalleled opportunity for participants to learn about cutting-edge physics research conducted at RIBF. Participants were also inspired by the experimental devices exhibited during the workshop, used in projects involving Accel Kitchen, as shown in Fig. 2. We believe it was highly meaningful for students interested in science to listen and assemble detectors, conduct measurements, and engage in discussions themselves. It would be a great joy if they could maintain their interest in science and in the future conduct research together at RIBF.



Fig. 2. Experimental devices exhibited during the workshop: From left to right, COGAMO,<sup>4)</sup> a cloud chamber and a Paul trap capturing pollen.<sup>5)</sup>

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We plan to continue hosting events this year as well; thus, we kindly ask for your continued cooperation.

## References

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