

RIBF ULIC Symposium/Mini-WS Report

Report date	3 Mar. 2023
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Name of Applicant	Nobuya Nishimura	Affiliation	RIKEN
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Workshop reference number	RIBF-ULIC Mini-WS039
Title	Nuclear Physics in Stellar Evolution and Explosive Objects
Date	20, 21 Feb. 2023
Venue	RIBF Large Conference Room, RNC, RIKEN
Language	Japanese
Workshop website	https://indico2.riken.jp/event/4404/
Contact Person(s) (Name, Affiliation)	Nobuya Nishimura (CPR, RIKEN), Akira Dohi (Hiroshima U), D. Suzuki (RNC, RIKEN), Y. Taniguchi (National of Technology (KOSEN), Kagawa Collage)

Summary of discussions and its (expected) results

In the workshop, we focused on the physics of nuclear reactions, which are particularly important for stellar nucleosynthesis. The recent activities and future perspective of RIBF in terms of astrophysical reactions were discussed. There were 11 scientific talks covering recent progress in theory, experiments and astrophysics. We also had discussion sessions on "problems of nuclear physics in X-ray bursts" and "key reactions for explosive nucleosynthesis" related to the talks and the status of RIBF facilities. X-ray bursts, an explosive phenomenon on the neutron star surface, provide several important subjects for nuclear experiments and theoretical studies. Based on recent progress in nuclear EOS and the physics of neutron stars, we agreed that considering more realistic astrophysical conditions is highly necessary for further investigations, particularly measurements of fusion reactions in the energy source. In addition, we discussed important nuclear reactions in the proton-rich heavy nuclei, based on the latest "key reactions" by nucleosynthesis calculations.