

## UKAKUREN One-Page Overview



**Purpose:** The UKAKUREN (Japan Forum of Nuclear Astrophysics) was launched in 2008 in order to promote collaboration and accelerate exchanging expertise among researchers in the interdisciplinary field “nuclear astrophysics” that consists of astronomy, astrophysics, nuclear physics, particle physics and meteorite science. Many scientists and students get together from our interdisciplinary field in the twin international conferences “Origin of Matter and Evolution of Galaxies (OMEG)”, which originated from Japan in 1988 right after the appearance of SN1987A.

**Membership:** UKAKUREN presently comprises of 8 core institutions (RIKEN, NAOJ, WNSC, RCNP, CNS, JAEA, Konan University, Hokkaido University) and about thirty associated institutions in Japan. To join, see <http://www.phys.konan-u.ac.jp/Ukakuren/>

**Support:** We are organizing workshops. Travel and accommodation for students and postdocs were partially supported by the members of core institutions with individual funds. Those who are interested in the research topics in Japan, you are welcome to contact us ([ukakuren-work@riken.jp](mailto:ukakuren-work@riken.jp)). There is an International Program Associate (IPA) at RIKEN, for example. Within the IPA, students enrolled in Ph.D. programs at universities or research institutions can come to RIKEN to carry out research.

### Science Highlights:

- .  $\beta$ -decay half-lives of 55 neutron-rich isotopes beyond the  $N = 82$  shell gap, J. Wu et al, Phys. Rev. C **101**, 042801 (R) (2020).
- . Rare-metal abundance points to a missing companion star for the supernova Cassiopeia A, T. Sato et al, Astrophys. Jour. **893**, 49 (2020).  
[https://www.riken.jp/en/news\\_pubs/research\\_news/rr/20200703\\_1/index.html](https://www.riken.jp/en/news_pubs/research_news/rr/20200703_1/index.html)
- . Scientists confirm a new “magic number” for neutrons, S. Chen et al, Phys. Rev. Lett. **123**, 142501 (2019)  
[https://www.riken.jp/en/news\\_pubs/research\\_news/pr/2019/20191018\\_2/index.html](https://www.riken.jp/en/news_pubs/research_news/pr/2019/20191018_2/index.html)
- . CRIB paper was selected as a Phys. Rev. C 50<sup>th</sup> Anniversary Milestone, H. Yamaguchi et al., Phys. Rev. C **87**, 034303 (2013).  
<https://www.cns.s.u-tokyo.ac.jp/en/post/2020/2020-11-18/>
- . Mapping the center of atoms, Titanium isotopes reveal unexpected stability of trapped neutrons inside nuclei, S. Michimasa et al., Phys. Rev. Lett. **125**, 122501 (2020). [https://www.u-tokyo.ac.jp/focus/en/articles/z0508\\_00109.html](https://www.u-tokyo.ac.jp/focus/en/articles/z0508_00109.html)
- . Properties of  $^{187}\text{Ta}$  Revealed through Isomeric Decay, P. Walke et al., Phys. Rev. Lett. **125**, 192505 (2020).
- . Transverse asymmetry of g rays from neutron-induced compound states of  $^{140}\text{La}$ , T.Yamaoto et al, Phys. Rev. C **101**, 064624 (2020).
- . Simulation of dwarf galaxy reveals different routes for strontium enrichment, Y. Hirai et al, Astrophys. Jour. **885**, 33 (2019).  
[https://www.riken.jp/en/news\\_pubs/research\\_news/rr/20200110\\_2/index.html](https://www.riken.jp/en/news_pubs/research_news/rr/20200110_2/index.html)