

# **TOPTIER Focus Program: Cutting-Edge Nuclear Theories for Exotic Nuclei**

**Monday, 21 April 2025 - Tuesday, 22 April 2025**

## **Scientific Programme**

Basically any nuclear physics topics related with rare isotope science will be discussed. Specific topics for the international collaboration are preferred.

April 21 (Monday)

Morning Session 1 (Chair : Nobuo Hinohara)

10:00-10:30 M. Kimura (RIKEN): Alpha cluster formation on the surface of nuclei

10:30-11:00 H. Tajima (U. Tokyo): Impurities and clusters in dilute nuclear matter

11:00-11:30 break

Morning Session 2 (Chair : Young-Ho Song)

11:30-12:00 Y. Kim (IBS): Nuclear theories at IBS

12:00-14:00 lunch break

Afternoon Session 1 (Chair : Masaaki Kimura)

14:00-14:30 Kazuki Yoshida (Osaka U.): Recent results of alpha knockout reaction for probing alpha clustering

14:30-15:00 Yoshihiro Aritomo (Kindai U.): Prospects for synthesis of new superheavy elements and the possibility of reaching stable islands from the neutron-rich region

15:00-16:30 break & discussions

Afternoon Session 2 (Chair : Myungkuk Kim)

16:30-17:00 M. Mun (KNU): Current status of DRHBc mass table project

17:00-17:30 N. Hinohara(U. Tsukuba): Binding-energy differences of even-even nuclei and pairing correlation

18:00-20:00 Dinner

April 22 (Tuesday)

Morning Session 1 (Chair : Kenichi Yoshida)

10:00-10:30 T. Naito (RIKEN): Isospin symmetry breaking energy density functional based on quantum chromodynamics

10:30-11:00 Y. Utsuno (JAEA): Large-scale shell-model calculations for exotic nuclei

11:00-12:00 break & discussions

Afternoon Session 1 (Chair : Kyungil Kim)

14:00-14:30 T. Miyagi (U. Tsukuba): Nuclear electromagnetic properties from valence-space  
in-medium similarity renormalization group

14:30-15:00 Kenichi Yoshida (Osaka U.): Proton–neutron pairing in neutron-rich nuclei

15:00-15:30 Young-Ho Song (IBS) : Carbon and Oxygen isotopes in Nuclear Lattice Effective Field  
Theory

15:30-17:30 break & discussions