

# ExtreMe Matter Institute EMMI

EMMI Workshop

## 2nd International Symposium on Clustering as a Window on the Hierarchical Structure of Quantum Systems (CLUSHIQ2022)

Sendai International Center, Miyagi, Japan, October 31 – November 3, 2022



Clusters & Hierarchies

This symposium (EMMI Workshop) aims at discussing why our material world has a hierarchical structure: quarks, hadrons, nuclei, atoms, and molecules. We focus on clusters and strong correlations in each hierarchy, which may provide keys to universally understanding the hierarchical structure. We also discuss characteristic features of correlations/clustering in each hierarchy. As such, participants are expected from a wide range of fields: hadron, nuclear, atomic and molecular physics.

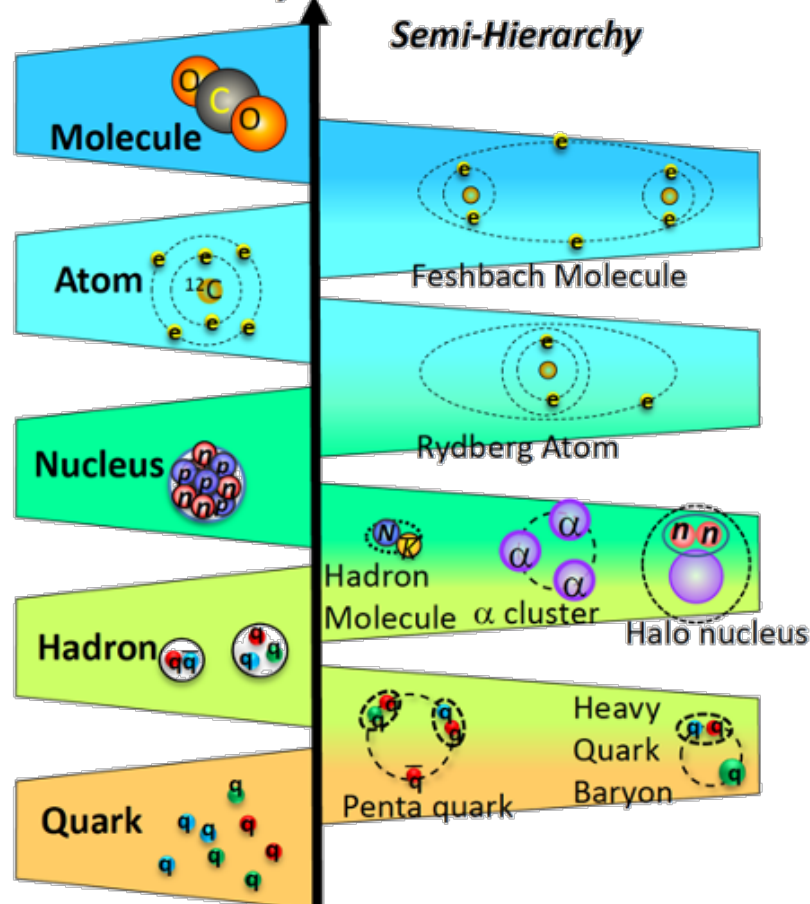
### Topics include:

1. Exotic hadrons using high-energy heavy-ion collisions
2. Lattice QCD/Ab-initio calculations
3. Exotic nuclei, alpha clusters, multi-neutron clusters, NN correlation
4. Three nucleon force, many-body force
5. Hypernuclei, strangeness, hyperon-nucleon interactions
6. Ultracold atoms and exotic atomic/molecular states/phases, quantum simulation
7. Efimov physics, few-body physics

### Organizers:

Takashi Nakamura (Chair, Tokyo Institute of Technology)  
Kenta Shigaki (Hiroshima University)  
Hiroaki Ohnishi (ELPH, Tohoku University)  
Hirokazu Tamura (Tohoku University)  
Yoshiro Takahashi (Kyoto University)  
Munekazu Horikoshi (Osaka Metropolitan University)  
Emiko Hiyama (Tohoku University)  
Kimiko Sekiguchi (Tokyo Institute of Technology)  
Yosuke Kondo (Tokyo Institute of Technology)  
Toshiyuki Takahashi (KEK)  
Atsushi Hosaka (RCNP, Osaka University)

### Conventional Hierarchy



This symposium is organized by Grant-in-Aid for Scientific Research on Innovative Areas, “Clustering as a window on the hierarchical structure of quantum systems”, <http://be.nucl.ap.titech.ac.jp/cluster/eng/index.html> (MEXT Kakenhi 18H05400)

The symposium is also supported by RIKEN Nishina Center for Accelerator-Based Science, Tohoku University, and Tokyo Institute of Technology.

### Website:

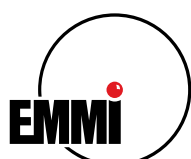
<http://be.nucl.ap.titech.ac.jp/cluster/symposium/334/>

### Information:

[www.gsi.de/emmi/workshops](http://www.gsi.de/emmi/workshops)

### More about EMMI:

[www.gsi.de/emmi](http://www.gsi.de/emmi)



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