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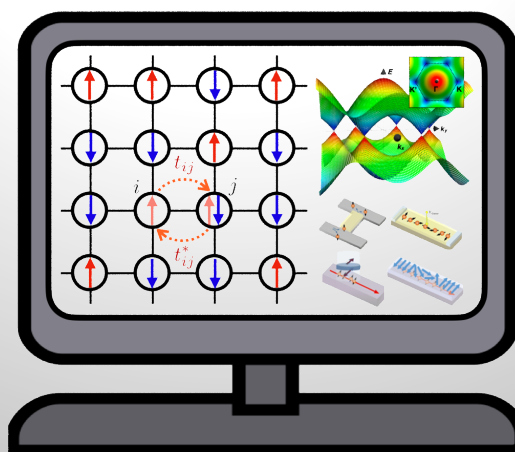apctp asia pacific center for theoretical physics

COMPUTATIONAL APPROACHES TO MAGNETIC SYSTEMS

INTERNATIONAL WORKSHOP
February 18 — February 20, 2025

Theoretical and computational description of magnetism remains a major challenge in condensed matter physics, requiring proper incorporation of electron-electron interactions and its consequences. Diverse computational methods—from mean-field theory to many-body approaches—are essential for advancing our understanding of magnetic phenomena. With rapid computational advances, the field of computational magnetism has seen extensive developments. This workshop aims to bring together talented young researchers in computational and theoretical studies of magnetism to discuss current breakthroughs and challenges. Topics will include methods such as density functional theory, dynamical mean-field theory, and field theories, covering phenomena including, but not limited to, metal-insulator transitions, magnetic phase transitions, and superconductivity across various systems. We hope this event will foster ongoing worldwide collaboration.

Topics include:
- Application of computational methods to realistic systems
- Spintronics and orbitronics
- Dynamics in magnetism
- Itinerant magnetism
- Low-dimensional systems
- Magnetic materials design

Invited Speakers
Anna Delin (Sweden)
Alexander Edström (Sweden)
Corina Etz (Sweden)
Myung Joon Han (Korea)
Naoya Iwahara (Japan)
Kyoung-Whan Kim (Korea)
Sunwoo Kim (UK)
Igor Di Marco (Poland)
Dhani Nafday (Sweden)
Taekoo Oh (Japan)
Changwon Park (Korea)
Minkyu Park (Korea)
Siheon Ryee (Germany)
Biplab Sanyal (Sweden)
Weiwei Sun (China)
Hongkee Yoon (Korea)

Scientific Coordinators
Ara Go (JNU)
Chang-Jong Kang (CNU)
Bongjae Kim (KNU)
Choong Hyun Kim (KIAS)
Heung-Sik Kim (KNU)
Sooran Kim (KNU)

To apply for participation in the Workshop, complete the online application form by **Jan 22,** 2025. For further information, see **pcs.ibs.re.kr** or contact the PCS Visitor Program at pcs@ibs.re.kr

Organizers
Gileun Lee (IBS, Korea)
Jaehee Kwon (IBS, Korea)