

— 2024 —

QNS Colloquium

Van der Waals magnets: a new platform for 2D magnetism

Two-dimensional magnetism has played a critical role in the development of modern magnetism, starting from the Heisenberg model proposed in the 1930s. It is not an exaggeration to state that all our modern understanding of matter stands on the theoretical models of Ising, XY, and Heisenberg models, all in two dimensions [1-3]. Despite the massive importance of the three theoretical models, the experimental studies have been slow in coming. There can be several reasons for this unfortunate situation: for example, the lack of adequate experimental tools. However, the primary reason for this lack of experimental studies about true two-dimensional magnetism is the absence of suitable materials. Against this background, the discovery of new two-dimensional magnets in TMPS₃ (TM=Mn, Fe, and Ni) in 2016 has been a major breakthrough [4-8]. A dozen new materials have been since added to this growing list of van der Waals magnets, enabling many new experiments that have never been considered. In this talk, I will explain how the field started and developed before sharing several recent research highlights.



Wed. April 17th | 17:00 -18:00

B1 Jupiter Seminar Room / ZOOM

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