TECHNISCHE UNIVERSITÄT DRESDEN

Bereich Mathematik und Naturwissenschaften Fakultät Physik

PHYSIKALISCHES KOLLOQUIUM

Vortrag: **Dr. Darren Peets**
Institut für Festkörper- und Materialphysik (IFMP),
TU Dresden

Thema: **Hydrothermal Growth of Frustrated Cu-Based Minerals**
(Vorstellung für Habilitation)

Zeit und Ort: Dienstag, 18.5.2021, 16:40 Uhr
Online-Meeting: BBB / Zugang mit Browser (Firefox oder Chrome)
- Teilnehmende mit ZIH-Login über folgenden Link:
https://selfservice.zih.tu-dresden.de/l/link.php?m=108691&p=cc739e4c
- Teilnehmende ohne Hochschul-Login über folgenden Link:
https://selfservice.zih.tu-dresden.de/link.php?m=108691&p=64e2b8a3

Leitung: Prof. Dr. Dmytro Inosov

Kurzfassung: The arrangement of quantum (S=½) spins on a highly-frustrated lattice can lead to exotic ground states in which quantum fluctuations are important. Exploring the effects of different interactions and different degrees of frustration requires access to a wide variety of structural motifs, and the ability to tune them, for instance through using other ions to expand or compress the lattice. The most accessible S=½ ion is Cu^{2+}, but few frustrated Cu lattices have been studied at low temperature. Minerals offer a largely untapped resource of additional structural motifs, including the "maple leaf lattice", intermediate between the kagome and triangular lattices, but the synthesis conditions required for these phases are in general not known. We are setting up a new crystal growth facility at the IFMP, concentrating on the hydrothermal growth of highly-frustrated Cu-containing minerals. I will summarize some of our first results, and discuss our future plans.

Biographie: Darren received his PhD from the University of British Columbia in Vancouver in 2008. A JSPS postdoctoral fellowship took him to Y. Maeno's group in Kyoto, then he worked with B. Keimer and C. Lin at the MPI-FKF in Stuttgart. He spent two years as a research professor and synthesis team leader in the new Institute for Basic Science – Center for Correlated Electron Systems at Seoul National University, then held a Xide Fellowship at Fudan University in Shanghai, followed by a CSC President's International Fellowship at the Ningbo Institute for Materials Technology and Engineering, before joining the IFMP at TU Dresden in 2019. At every step he has synthesized and characterized strongly-correlated materials, including noncentrosymmtric superconductors, frustrated magnets, topological materials, and the candidate p-wave superconductor Sr2RuO4.