

## AHMF & Cadet Program Joint Seminar

先端強磁場科学研究センター&カデットプログラム共催セミナー

講師 (Speaker): Dr. Sergei Zvyagin

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日時 (Date & Time): 11月5日午後4時30分~(16:30-, November 5)

場所 (Venue): 理学研究科 H棟セミナー室 B (H601)

タイトル(Title) : Spin dynamics and magnetic properties of the triangular-lattice antiferromagnet  $\text{Cs}_2\text{CuCl}_4$

要旨 (Abstract):

Spin-1/2 triangular-lattice antiferromagnets are important prototype systems to investigate phenomena of the geometrical frustration in condensed matter. Apart from highly unusual magnetic properties, they possess a rich phase diagram (with ground states, ranging from an unfrustrated square lattice to a quantum spin liquid), yet to be confirmed experimentally. One major obstacle in this area of research is the lack of materials with appropriate (ideally tuned) magnetic parameters. Using  $\text{Cs}_2\text{CuCl}_4$  as a model system, we demonstrate an alternative approach, where, instead of the chemical composition, the spin Hamiltonian is altered by hydrostatic pressure. The application of high-field high-pressure electron spin resonance and r.f. susceptibility techniques allowed us to accurately monitor exchange parameters. Our experiments indicate a substantial increase of the exchange coupling ratio from 0.3 to 0.42 at a pressure of 1.8 GPa, revealing a number of emergent field-induced phases. In addition, I present our very recent results on thermo-conductivity measurements, confirming the 1D magnetic nature of the heat transport in this frustrated material.

\*In collaboration with: D. Graf, T. Sakurai, S. Kimura, H. Nojiri, J. Wosnitza, H. Ohta, T. Ono, and H. Tanaka.

参照文献 (References)

[1] S.A. Zvyagin et al., Nat. Comm. **10**, 1064 (2019).

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