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## Frustration-induced diffuse magnetic scattering in metallic HoInCu<sub>4</sub>

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Materials with geometrically frustrated lattice structures are highly interesting as they often exhibit unconventional phases of matter. While most research on frustrated materials has been performed on insulating spin systems, only little work has been done on magnetically frustrated metallic systems. Notably, one of the pressing questions in the field is how frustrated interactions can affect the ground state in itinerant systems.

HoInCu<sub>4</sub> is a metal with a face-centered cubic crystal structure that makes it prone to geometrical frustration. Its minuscule ordering temperature indicates a high level of frustration. This has been confirmed by recent experiments showing that the material features partial magnetic order where only half of the Holmium atoms exhibit long-range magnetic order, while the other half remain short-range ordered [1]. The behavior of the moments not participating in the long range order is, however, not yet understood.

I will present our recent neutron scattering results on HoInCu<sub>4</sub> that were obtained using thermal and cold neutrons. In detail, I will present diffuse magnetic scattering data as function of temperature, and discuss how they can be related to a model with nearest and next nearest neighbor magnetic interactions.

[1] O. Stockert et al., Phys. Rev. Research 2, 013183 (2020)

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