



TRR 80 Sonderseminar

Am Dienstag, den 9. April um 16:00 Uhr

spricht

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über das Thema

Low-frequency magnetic resonances of the polar ferrimagnet $Mn_2Mo_3O_8$

At low temperatures the members of the polar $M_2Mo_3O_8$ crystal family, where M stands for transition metal ions, exhibit various magnetic orders coupled to the electric polarization of the material. In the static limit, this magneto-electric coupling opens a new path for data storage [1], while in the dynamical range the spin-wave excitations offer a model system to study axion physics [2]. However, the microscopic description of the spin-wave resonances and the magneto-electric coupling in these material family is still an open task.

We followed the magnetic field dependence of the spin-wave resonances of the ferrimagnetic $Mn_2Mo_3O_8$ in three magnetic phases by combining far-infrared optical spectroscopy and backward-wave oscillators. Both the observed resonance frequencies and the field dependence of the magnetization [3] were quantitatively reproduced by a relative simple anisotropic two-sublattice antiferromagnetic model.

- [1] Y. Wang, G. L. Pascut, B. Gao, T. A. Tyson, K. Haule, V. Kiryukhin and S.-W. Cheong, Unveiling hidden ferrimagnetism and giant magnetoelectricity in polar magnet $Fe_2Mo_3O_8$, *Sci. Rep.* 5, 12268 (2015).
- [2] T. Kurumaji, Y. Takahashi, J. Fujioka, R. Masuda, H. Shishikura, S. Ishiwata and Y. Tokura, Optical Magnetoelectric Resonance in a Polar Magnet $(Fe,Zn)_2Mo_3O_8$ with Axion-Type Coupling, *Phys. Rev. Lett.* 119, 077206 (2017).
- [3] V. Tsurkan, private communication

Gäste sind herzlich willkommen.

Der Vortrag findet im Seminarraum S-403, Institut für Physik,
Universität Augsburg statt.

Gastgeber: Prof. Dr. István Kézsmárki
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