

# KIDS TALK

## “Laser-induced ultrafast spin dynamics on homonuclear two- and three-magnetic-center structures”

Speaker: Wei Jin, AG Hübner

Abstract: We present a fully ab initio theory for coherent laser-induced ultrafast spin dynamics on homodinuclear and homotrinuclear magnetic clusters and complex. For the recently synthesized and characterized compound  $[\text{Ni}^{\text{II}}_2(\text{L-N}_4\text{Me}_2)(\text{emb})]$ , we predict a local ultrafast spin-flip scenario with the participation of charge-transfer states. Additionally, we find good agreement between the calculated and measured absorption spectra for both of the ground-state and two observed transient states with respect to the peak positions. In the pursuit of richer functionality,  $\text{Co}_3^+(\text{EtOH})$  and  $\text{Co}_3^+\text{CO}$  are chosen to be investigated. For the latter cluster, a cycle of spin transfer within 2.5 ps driven by three sequential laser pulses is achieved. Based on this striking finding, a cyclic SHIFT register is proposed as a future application. The results on these prototypic systems pave the way to coherently manipulate and detect spin on realistic structures as well as demonstrate their great potential in spintronics devices.

When: Friday, June 6<sup>th</sup> 2014, **10:00 am**

Where: Room 46-387/388

All undergraduate and graduate students as well as postdocs are welcome and encouraged to join our discussion!

For subscription to kids talk mailing list, questions, comments or suggestions: [vlauer@rhrk.uni-kl.de](mailto:vlauer@rhrk.uni-kl.de)

\*\*\*\*\* COFFEE, TEA AND COOKIES WILL BE SERVED \*\*\*\*\*

