



**14<sup>th</sup> January 2014 – 15:00**  
CFEL, Building 99 – Seminar Room I

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## Multiferroic $\text{TbMnO}_3$ , $\text{RMn}_2\text{O}_5$ , and $\text{BiFeO}_3$ thin films investigated by Raman light scattering and neutron reflection

Multiferroic materials demonstrate excellent potential for next-generation multifunctional devices, as they exhibit coexisting ferroelectric and magnetic orders. At present, the underlying physics of the magnetoelectric coupling is not fully understood, and competing theories propose conflicting experimental outcomes. Therefore, we have investigated isotopically substituted  $\text{TbMn}_{16/18}\text{O}_3$  and  $\text{RMn}_2\text{O}_5$  (R = magnetic Tb, Ho and non-magnetic Y) by Raman light scattering and neutron diffraction in order to elucidate the ferroelectric coupling mechanism in both compounds. Neutron reflection and resonant magnetic X-ray reflection experiments were performed in  $\text{BiFeO}_3/\text{LaSrMnO}_3$  heterostructures in order to determine the stoichiometric and magnetic depth profile across the interface between both materials.