

**Saturday 4**

**9:00- 9:45 J. Deisenhofer "Light scattering: infra-red and Raman "**

**Monday 6**

**14:30-15:15 Tutorial (J. Deisenhofer)**

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During the lecture the basic principles and experimental setups of infrared spectroscopy and Raman scattering will be introduced. Using these two techniques, many fundamental excitations of charge, spin, orbital and lattice degrees of freedom can be observed. Among these I will discuss examples for vibrational modes (lattice), crystal-field excitations (orbitals), and magnon excitations (spins) in systems with a dimerized magnetic state like e.g.  $\text{TiOCl}$  or with a magnetically ordered ground state like e.g. the antiferromagnet  $\text{MnF}_2$ . In the tutorial, some of the examples will be discussed in more detail and an explicit analysis of infrared and Raman active modes of a model compound will be performed.