

QM3: **Yann Gallais** (Université Paris-Cité) 2h

" Raman scattering in quantum materials"

In the first part of the lecture, I will introduce the basics of Raman scattering and its application to study quantum materials. The focus will be on its use to study symmetry broken states like superconductivity, density-wave and more subtle one like nematic order. Concrete examples from the recent literature on quantum materials will be discussed. In the second part of the lecture, I will discuss non-linear optical techniques such as harmonic generation and Kerr effect which have recently emerged as alternative probes of symmetry breaking and their associated collective modes.