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MMQ02 : Density waves in quantum materials

Organizers: Alaska Subedi (CPHT, Ecole Polytechnique), Benoit Fauque (LPEM, ESPCI)

Quantum materials are a fertile playground in the search for phase transitions that break translational symmetry due to the formation of charge and spin density waves. These density waves often arise due to strong coupling of the charge, spin, and lattice degrees of freedom. In these complex materials, the density wave phases often compete with other remarkable states, such as superconductivity, magnetism or nematic phases.

This colloquium will be dedicated to the latest progress made in the study of these density waves and their interplay with other electronic instabilities that are at play in layered nickelates (LaNiO2, La3Ni2O7, etc.) and kagome metals (CsV3Sb5, ScV6Sn6, etc.), which are currently receiving intense attention, as well as in heavy fermions, high Tc cuprates, pnictides, etc. which are still being actively investigated.

It aims to gather experimentalists in the field of transport, thermodynamics, spectroscopy (Raman, IR, neutron, NMR) and time-resolved measurements, and theorists in first principles calculations and many body effects.