

QM7: **Andrea Young** (University of California - Santa Barbara) 3h

“Topology and correlations in crystalline graphene heterostructures”

In these lectures I will give an overview of the interplay of topology and strong correlations in graphene flat band systems, focusing in particular on systems with weak- or absent moire superlattice, specifically Landau levels in mono- and bilayer graphene and rhombohedral graphene multilayers at large displacement field. Along the way, I will introduce the electronic structure of graphene, the role of the Coulomb interaction in lifting the spin and valley degeneracies, and our current understandings of the origin and nature of gapped topological states at both zero and large magnetic field and the nature and origin of unconventional superconductivity observed in these systems.