

The magic of moiré quantum matter

zoom:
<https://epfl.zoom.us/j/84048962946>



Prof. Pablo Jarillo-Herrero
MIT

Monday
November 16th
16:15
zoom

The understanding of strongly-correlated quantum matter has challenged physicists for decades. Such difficulties have stimulated new research paradigms, such as ultra-cold atom lattices for simulating quantum materials. In this talk I will present a new platform to investigate strongly correlated physics, namely moiré quantum matter. In particular, I will show that when two graphene sheets are twisted by an angle close to the theoretically predicted 'magic angle', the resulting flat band structure near the Dirac point gives rise to a strongly-correlated electronic system. These flat bands systems exhibit a plethora of quantum phases, such as correlated insulators, superconductivity, magnetism, Chern insulators, and more. Furthermore, it is possible to extend the moiré quantum matter paradigm to systems beyond magic angle graphene, and I will present an outlook of some exciting directions in this emerging field.

Host: O. Yazyev, 35485, oleg.yazyev@epfl.ch