Hamburg Photon Science Colloquium

LIGHT-MATTER INTER-ACTIONS THROUGH THE QUANTUM GEOMETRIC LENS

QIONG MA

Boston College, Chestnut Hill, MA, USA Close to massive objects, spacetime curvature bends light trajectories, giving rise to dramatic phenomena such as black holes and gravitational waves. Similarly, the quantum world of electrons possesses a geometric structure, encoded in their wavefunctions and captured by quantities like the quantum metric and Berry curvature. Such a quantum geometrical structure, studied as quantum metric and Berry curvature, can reshape an electron's behaviors in nontrivial ways. Quantum geometry also has a deep relation with topological phases of matter, which have taken center stage in condensed matter over the past decade. In this talk, I will show several examples how quantum geometry can strongly modify the electronic response to external electromagnetic waves and give rise to a wide range of previously unexplored nonlinear responses.



FRIDAY, 23.05.2025

2:00 PM

CFEL SEMINAR ROOMS I-III & ONLINE PRESENTATION CHECK HHPS.DE FOR FURTHER INFORMATION













