Condensed matter provides us deep insights into quantum physics. Giving just two examples, wave-corpuscle duality manifests itself in spectroscopy of strongly correlated systems as coexistence of itinerant and atomic-like features, and graphene and other Dirac materials provide a natural playground to study vacuum reconstruction, Klein tunneling and other fundamental quantum relativistic phenomena. Electron-photon interaction is the key tool to understand this rich and nontrivial physics.