Two-dimensional Ruddlesden-Popper metal halides (2D-RPMHs) are materials composed of quasi-2D layers of metal-halide octahedra separated by long (~1nm) organic cationic layers. The latter facilitate electron and hole quantum confinement within the metal-halide layers resulting in a quantum-well like structure. Properties of excitons (electron-hole bound states) in such structures are characterized by strong binding energy (>200 meV) arising from the dynamically screened Coulomb interactions [1]. We have experimentally observed that polaronic effects arising from the lattice dressing of the carriers, are not only active but that they fundamentally define excitons in 2D-RPMHs [2]. We thus refer to such excitons as the exciton-polarons, with properties that are measurably distinct from those of free excitons in semiconductors [1]. In this talk, I will discuss the quantum dynamics of exciton-polarons and provide spectroscopic insights into the peculiar phonon-phonon [3], exciton-phonon and exciton-exciton [4] interactions. I will present our perspective on how the coherent optical response of 2D-RPMHs can be effectively rationalized within the “exciton-polaron” framework, in which lattice dressing of photo-carriers constitute an integral component of excitonic wavefunction [1], with consequences on exciton recombination dynamics and diffusion.