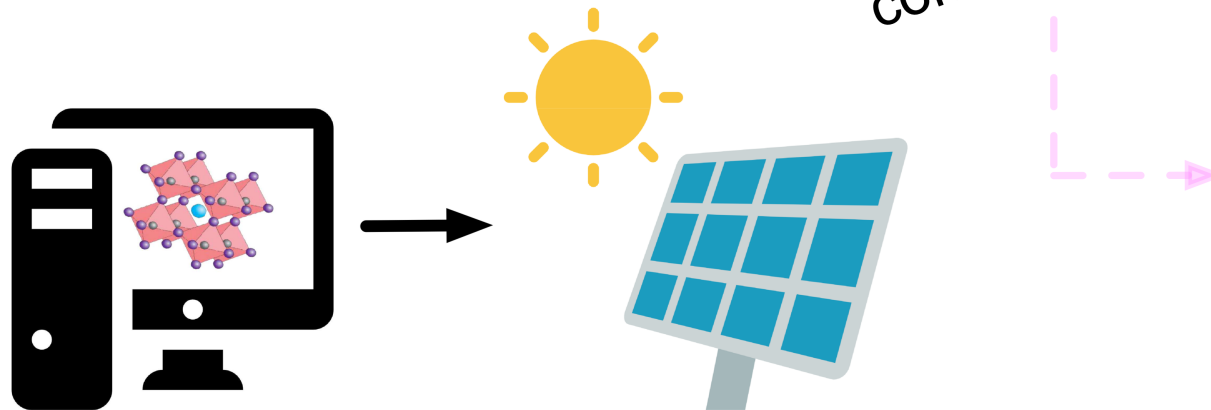
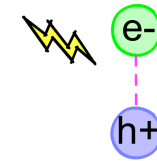


Lucy Whalley

Materials Design Group



Steps for
efficient light-
to-electricity
conversion

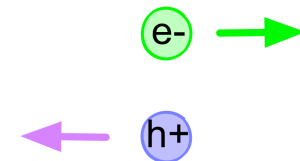


1. Charge carrier generation



2. Charge carrier separation

electron
transport in
hybrid halide
perovskites

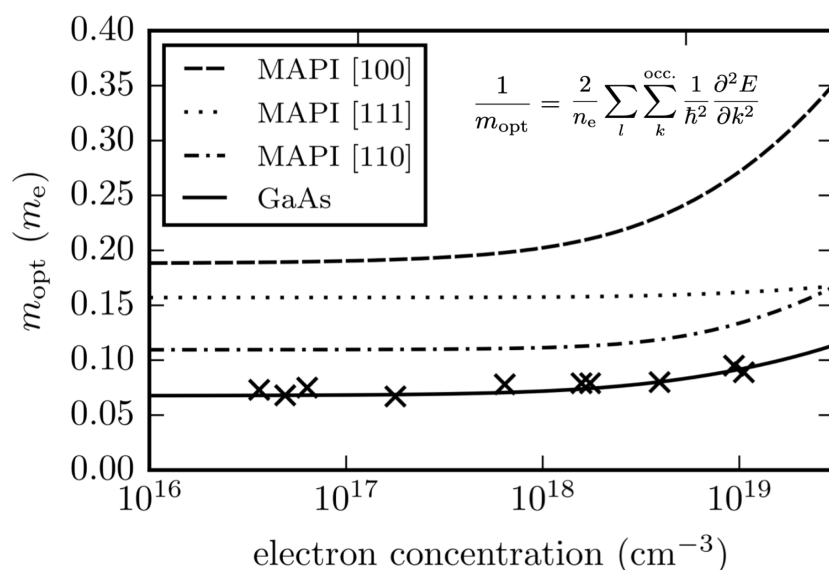


3. Charge carrier transport

Lucy Whalley

Materials Design Group

intrinsic limitation: *effective mass*



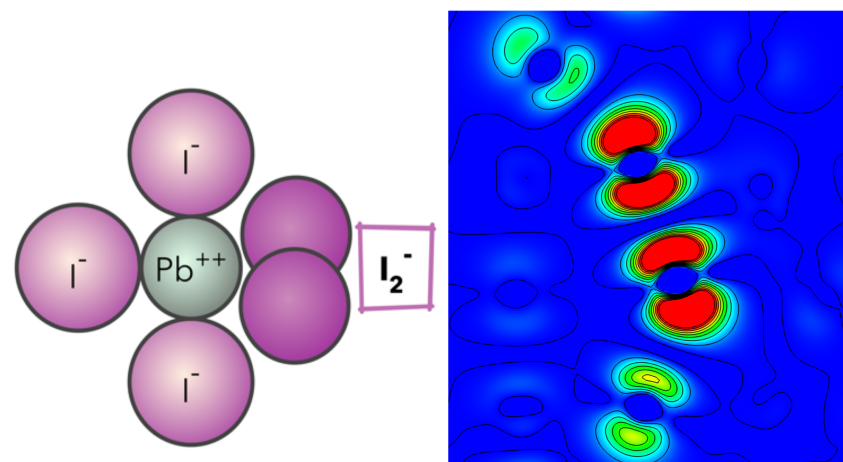
At a carrier concentration of 10^{20} cm^{-3} the effective mass has doubled

Physical Review B **99** (8), 085207

electron transport in
hybrid halide
perovskites



extrinsic limitation: *point defects*



After hole capture the iodine interstitial forms a I_2^- dimer with a self-trapped hole

ACS Energy Lett. **2** (12), 2713-2714

