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Dielectric Effects in Halide Perovskites

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The halide perovskite solar cell absorbers require an appropriate band gap, high light absorption, high charge carrier mobility, long charge carrier lifetime and a work function that matches available selective transport layers. In this presentation we will discuss the different contributions of the constituents of the respective crystal and their contribution to the dielectric constant. The latter in turn strongly affects the charge carrier lifetime and the screening of defect states. We will consider a number of materials and our understanding of the effects six years ago and now. Cases of 3D, 2D, 1D and 0D octahedra connectivities will be compared.