The role of the A-site cation in determining electronic properties of lead halide perovskites

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The A-site cation was initially considered to be a "placeholder", stabilizing the structure of lead halide perovskites. I will discuss two reflections of the importance of the A-site cation on determining electronic properties. The first has to do with exciton-exciton interactions in weakly quantum confined nanocrystals. The second has to do with self-healing dynamics. Together they point at the fact that coupling of electronic and lattice degrees of freedom can lead to a dramatic role of the A-site cation.