

MS15-1-18 Lead-free layered organic-inorganic double perovskite with novel interlayer halide structure
#MS15-1-18

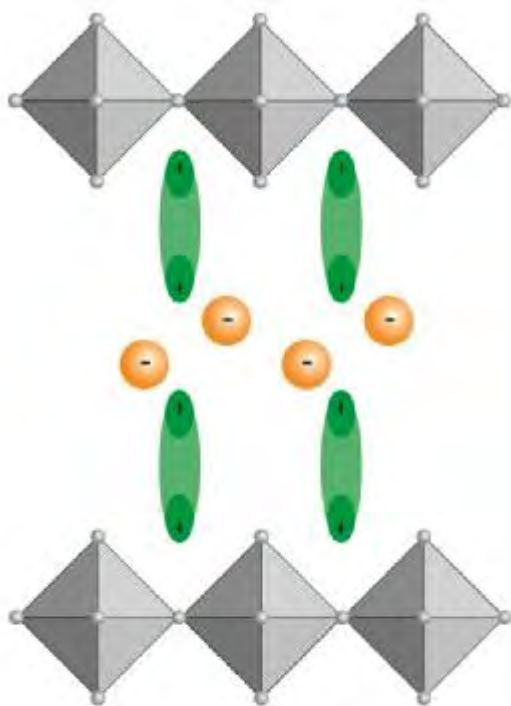
W. Wong ¹, K.P. Loh ¹, X. Wang ¹

¹National University of Singapore - Singapore (Singapore)

Abstract

The structural flexibility of hybrid organic-inorganic perovskites is known and widely exploited for various applications. Here we present a new family of layered hybrid perovskites, which would be a subset of the Dion-Jacobson series of double perovskite. The organic 'spacer' layer now consists of a diammonium-halide-diammonium rather than one single layer of diammonium cation. Drawing comparison to the oxide perovskites, this new class can be seen to be closely related to the Aurivillius phase. This poster shows the key chemical and structural considerations arising from this family and such a configuration can be seen for the Cu⁺/Bi³⁺ and Ag⁺/Bi³⁺ systems using the 3-aminopyrrolone cation. Through the organic cation selection, we show that chirality can be imparted into the system thereby inducing a chiral space group which potentially exhibits ferroelectricity.

Graphical abstract



2D Perovskite with Interlayer Halide