

## CORRECTION

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## Correction: Transforming colloidal Cs<sub>4</sub>PbBr<sub>6</sub> nanocrystals with poly(maleic anhydride-*alt*-1-octadecene) into stable CsPbBr<sub>3</sub> perovskite emitters through intermediate heterostructures

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Correction for 'Transforming colloidal Cs<sub>4</sub>PbBr<sub>6</sub> nanocrystals with poly(maleic anhydride-*alt*-1-octadecene) into stable CsPbBr<sub>3</sub> perovskite emitters through intermediate heterostructures' by Dmitry Baranov *et al.*, *Chem. Sci.*, 2020, 11, 3986–3995, DOI: 10.1039/D0SC00738B.

After the publication of our manuscript, an inquiry from a reader pointed out an earlier publication that was not cited in the context of prior art relevant to our study. We thank the reader for their interest in our work. Prompted by the inquiry, we thought it would be appropriate to acknowledge a few earlier and relevant publications that escaped our attention.

De Matteis *et al.*<sup>1</sup> have reported room temperature excitation–emission maps (photoluminescence maps) of powders containing a mixture of Cs<sub>4</sub>PbBr<sub>6</sub> and CsPbBr<sub>3</sub> compounds (Fig. 9 and 10 in ref. 1). The photoluminescence maps show a dip at around ~314 nm in the excitation spectrum of the CsPbBr<sub>3</sub> compound emitting at ~520 nm. The dip matches the wavelength of the electronic absorption in Cs<sub>4</sub>PbBr<sub>6</sub>. In a similar vein, Shin *et al.*<sup>2</sup> have reported room temperature photoluminescence maps of CsBr/PbBr<sub>2</sub> co-evaporated thin films containing a mixture of CsPbBr<sub>3</sub> and Cs<sub>4</sub>PbBr<sub>6</sub> compounds. In a photoluminescence map shown in Fig. 5b of ref. 2, the emission of the CsPbBr<sub>3</sub> compound at ~517 nm is quenched at the excitation wavelength of ~318 nm, consistent with absorption by Cs<sub>4</sub>PbBr<sub>6</sub>. Both De Matteis *et al.*<sup>1</sup> and Shin *et al.*<sup>2</sup> observed an additional room temperature UV emission at ~375 nm and ~360 nm, respectively, from the mixed CsPbBr<sub>3</sub>–Cs<sub>4</sub>PbBr<sub>6</sub> samples and assigned it to Cs<sub>4</sub>PbBr<sub>6</sub>.

The room temperature photoluminescence maps of Cs<sub>4</sub>PbBr<sub>6</sub>–CsPbBr<sub>3</sub> heterostructured nanocrystals studied in our work (Fig. 4a)<sup>3</sup> show a qualitatively similar dip in the intensity of ~504 nm emission from CsPbBr<sub>3</sub> when excited at ~314 nm, the absorption wavelength of Cs<sub>4</sub>PbBr<sub>6</sub>. In contrast to the above-mentioned observations, Cs<sub>4</sub>PbBr<sub>6</sub>–CsPbBr<sub>3</sub> heterostructured nanocrystals were not emissive in UV at room temperature but showed a weak ~376 nm emission from Cs<sub>4</sub>PbBr<sub>6</sub> only when cooled down to ~35 K (Fig. 4b).<sup>3</sup> The three studies share similar photoluminescence measurements and chemical formulas of the studied compounds. However, the synthetic origins and structures of the samples, together with discussions of the observed phenomena, are different in the three studies.

Krieg *et al.*<sup>4</sup> have reported effective colloidal stabilization of CsPbBr<sub>3</sub> nanocrystals over a wide range of concentrations, from 400 mg ml<sup>-1</sup> to 4 × 10<sup>-6</sup> mg ml<sup>-1</sup> of inorganic content in toluene (Fig. 2 in ref. 4) by means of lecithin, a naturally occurring zwitterionic ligand. The lecithin-stabilized nanocrystals have been reported to be stable against multiple rounds of washing, *i.e.*, precipitation–redispersion with an antisolvent. The poly(maleic anhydride-*alt*-1-octadecene) compound (PMAO) used in our work to transform Cs<sub>4</sub>PbBr<sub>6</sub> nanocrystals into CsPbBr<sub>3</sub> nanocrystals yielded colloids of PMAO-capped CsPbBr<sub>3</sub> nanocrystals which survive several rounds of washing and are stable in the concentration range of ~26 mg ml<sup>-1</sup> to ~1 × 10<sup>-4</sup> mg ml<sup>-1</sup> (Fig. S32). It is notable that both lecithin and PMAO increase the colloidal stability of CsPbBr<sub>3</sub> nanocrystals despite an apparently different surface binding chemistry and a different way of being introduced into the nanocrystal preparation.

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.

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