

# Supplementary Materials

## “Exploring epitaxial structures for electrically pumped perovskite lasers: a study of CsPb(Br,I)<sub>3</sub> based on the *ab initio* Bethe-Salpeter equation”

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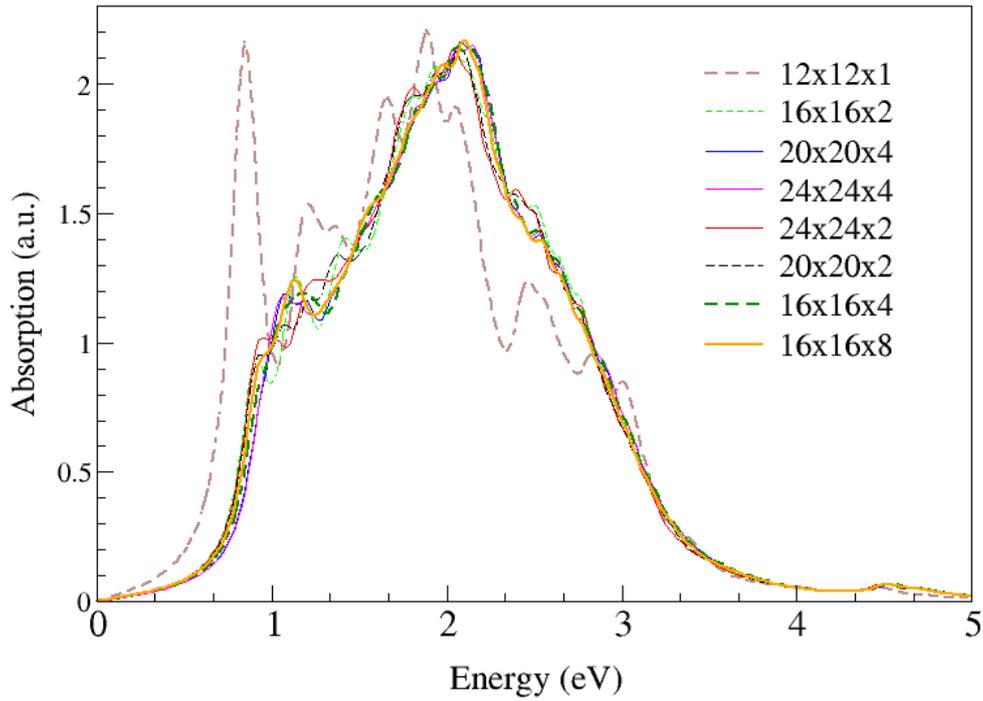


Figure S1: Convergence test for the BSE absorption spectrum for M1 supercell and polarisation [100] performed with respect to the sampling grid in the BZ.

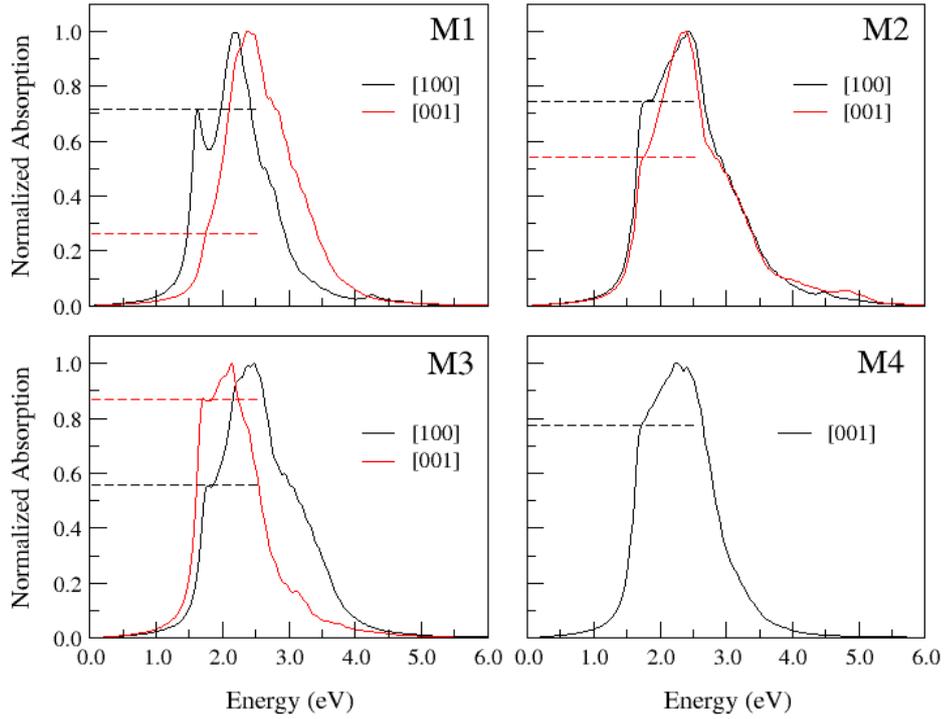


Figure S2: Normalised absorption spectra obtained from the non-relativistic *ab initio* Bethe-Salpeter equation for the supercells considered in this work. In this and the following figure the electric field is chosen either along [100] (in-plane) or along [001] (out-of-plane). The dashed lines indicate the height of the first prominent peaks.

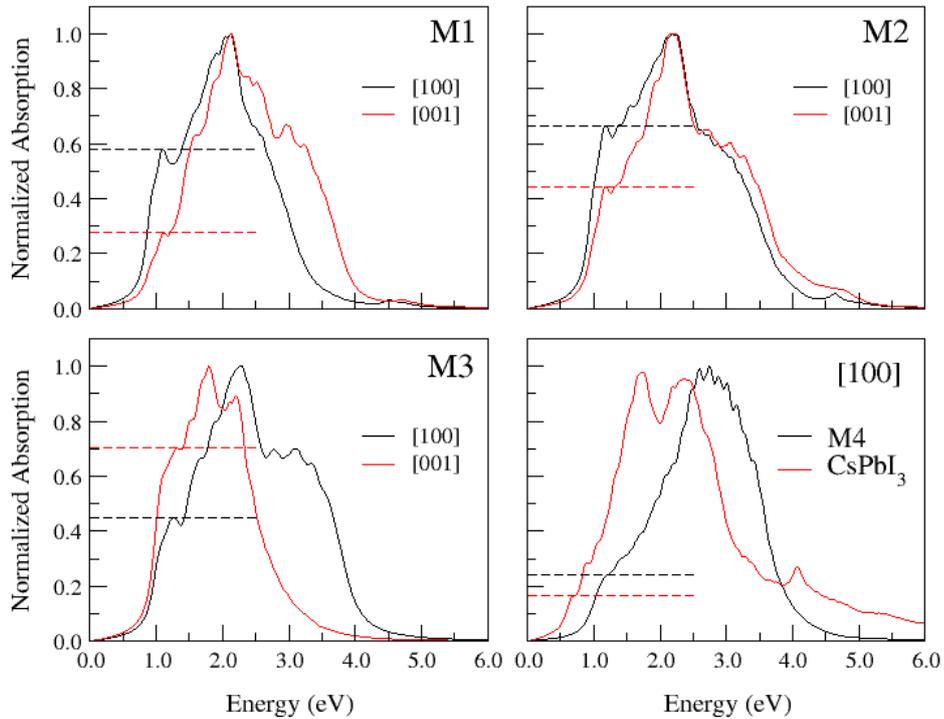


Figure S3: Normalised absorption spectra obtained from the *ab initio* Bethe-Salpeter equation including SOC included for the supercells considered in this work and for pure CsPbI<sub>3</sub>.

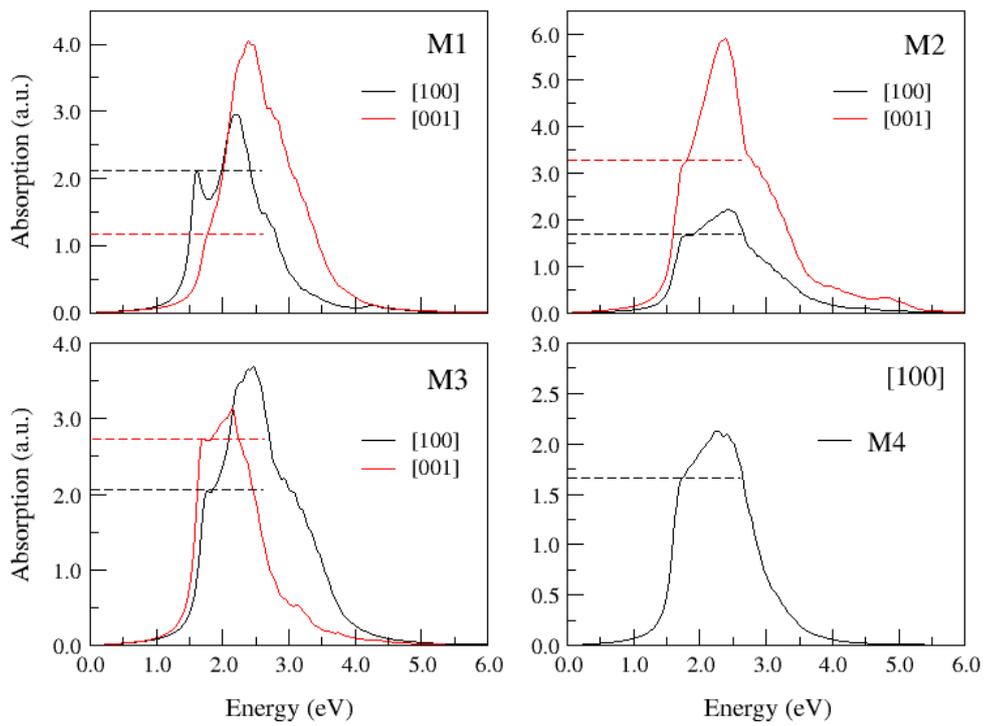


Figure S4: Absorption spectra (not normalised) obtained from the non-relativistic *ab initio* Bethe-Salpeter equation for the supercells considered in this work.