

Deposition and Characterisation of Perovskite Films

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This research project investigates the performance of perovskite films and their suitability for use as radiation detectors, either as semiconductors or scintillators. We are particularly interested in films that are 10-100 μm thick, fabricated using various deposition methods.

Using the method of physical vapor deposition, FAPbBr₃ films were produced atop a substrate. Photoluminescence carried out on the films showed that the peak emission wavelength of the films is close to that of the bulk single crystal of the same material, at around 557 nm. Line scans of the films were acquired using a profilometer, and by locating the 'step' in the line scan, the films were determined to be a few hundred nanometres thick. Scanning electron microscopy was used to investigate the structure and grain size of the films. We will go on to develop the films so that they reach the desired thickness, alongside investigating the suitability of other source materials, including CsPbBr₃.

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