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Type: **Talk (20 min + 5 min discussion)**

Identification of vacancy-related defects in photovoltaic thin films

Variable energy positron annihilation lifetime measurements and related density functional theory calculations of positron lifetimes are presented and discussed for two emerging thin film photovoltaic materials, the binary semiconductor Sb_2Se_3 and the halide perovskite MAPbI_3 . Measurements on a series of Sb_2Se_3 thin film and single crystal samples are presented. DFT calculations provide evidence for the identification of Sb monovacancy defects and divacancies. Measurements on MAPbI_3 samples from three groups supported by DFT calculations provide evidence for the identification of Pb vacancy (B-site) related defects. A comparison between DFT calculated lifetime in MA containing halide perovskites with varying anion type are given and discussed. ‘

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