X-Ray Diffraction and photocurrent measurements in $CH_3NH_3PbI_3$ perovskite

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Perovskite materials with their promising properties for photovoltaics have set the solar research world ablaze. Processability from solutions and low temperature crystallization are marvelous features of these materials that make them so attractive for laboratory and industrial use. Preparation conditions have a strong impact upon the properties of materials involved, i.e. chemical potentials, crystallization temperatures and ambient. X-Ray Diffraction Spectroscopy showed the most pure phase for non-stoichiometric 3:1 proportion of CH_3NH_3I : PbI_2 with tetragonal cell (a=8.85 Å, c=12.60 Å) and predominant orientations of (110), (220) and (224) faces. Photocurrent measurements demonstrate high photosensitivity in the visible region (380-700 nm).

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