

ELECTRONIC SUPPLEMENTARY INFORMATION

Enhanced Air-Stability of Sn-based Hybrid Perovskites Induced by Dimethylammonium (DMA): Synthesis, Characterization, Aging and Hydrogen Photogeneration of the $\text{MA}_{1-x}\text{DMA}_x\text{SnBr}_3$ System

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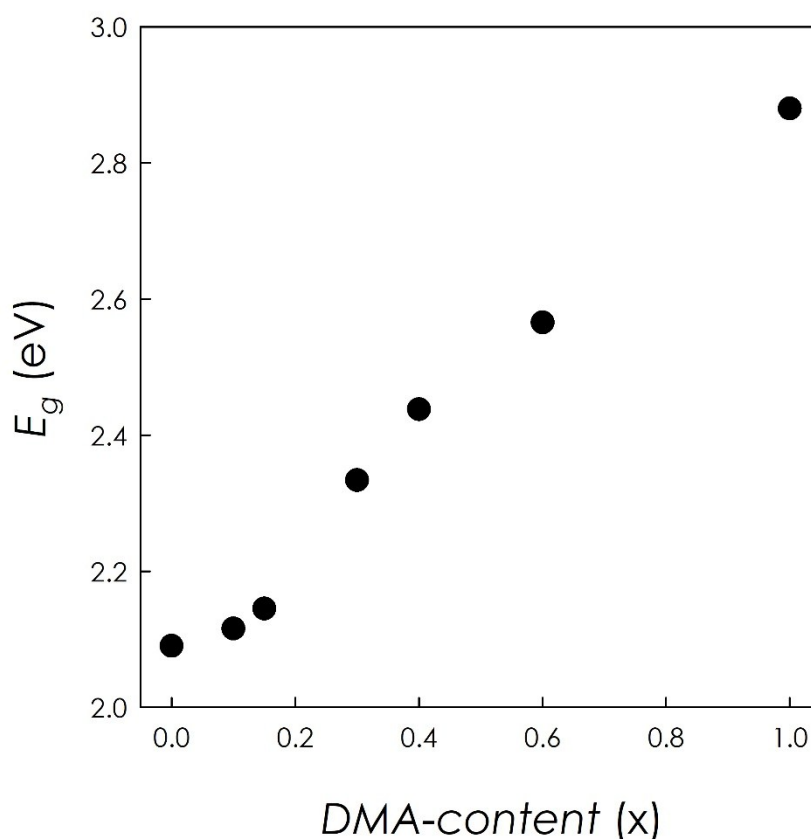


Figure S1: Band-gap as a function of x for the $\text{MA}_{1-x}\text{DMA}_x\text{SnBr}_3$ samples reported in the main text. Band-gap have been determined from the Tauc plots reported in Figure 4b.

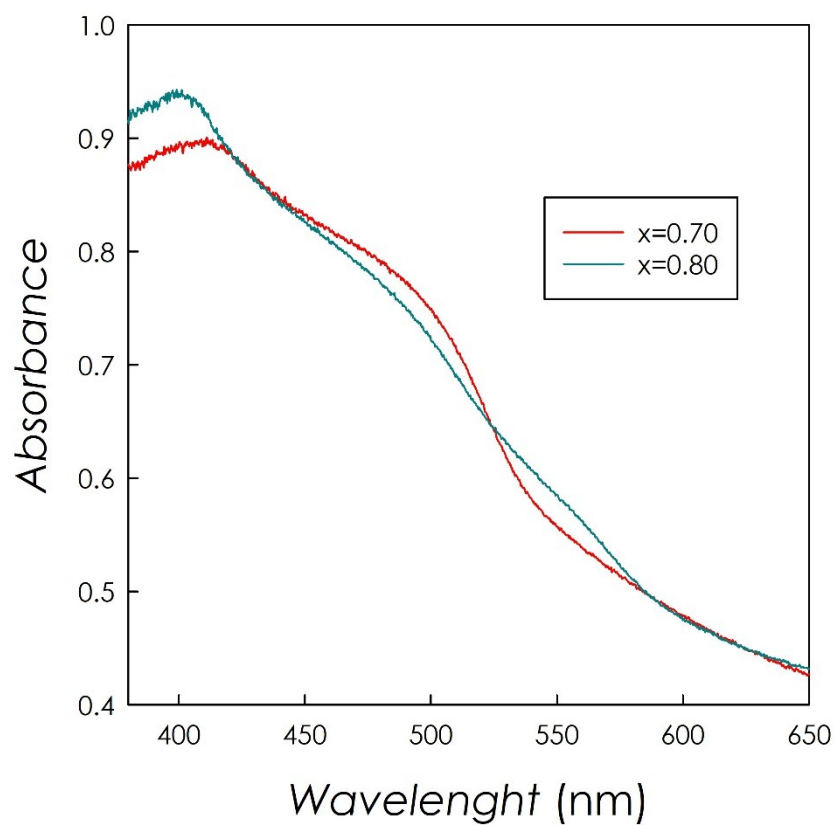


Figure S2: Absorption spectra of the $\text{MA}_{1-x}\text{DMA}_x\text{SnBr}_3$ samples for $x=0.70$ and $x=0.80$.

<i>Sample</i>	<i>a</i> (Å)	<i>b</i> (Å)	<i>c</i> (Å)
<i>x=0</i> As-prep	5.9129(5)	5.9129(5)	5.9129(5)
<i>x=0</i> 1- day	5.9127(5)	5.9198(5)	5.9198(5)
<i>x=0</i> 6 - days	5.9112(5)	5.9210(6)	5.9210(6)
<i>x=1</i> As-prep	12.3216(4)	12.1812(3)	12.3265(3)
<i>x=1</i> 1- day	12.3145(4)	12.1791(3)	12.3042(3)
<i>x=1</i> 6 - days	12.2895(6)	12.1737(5)	12.2917(5)

Table S1: Lattice parameters of MASnBr_3 and DMASnBr_3 aged sample at 1- and 6-days aging.

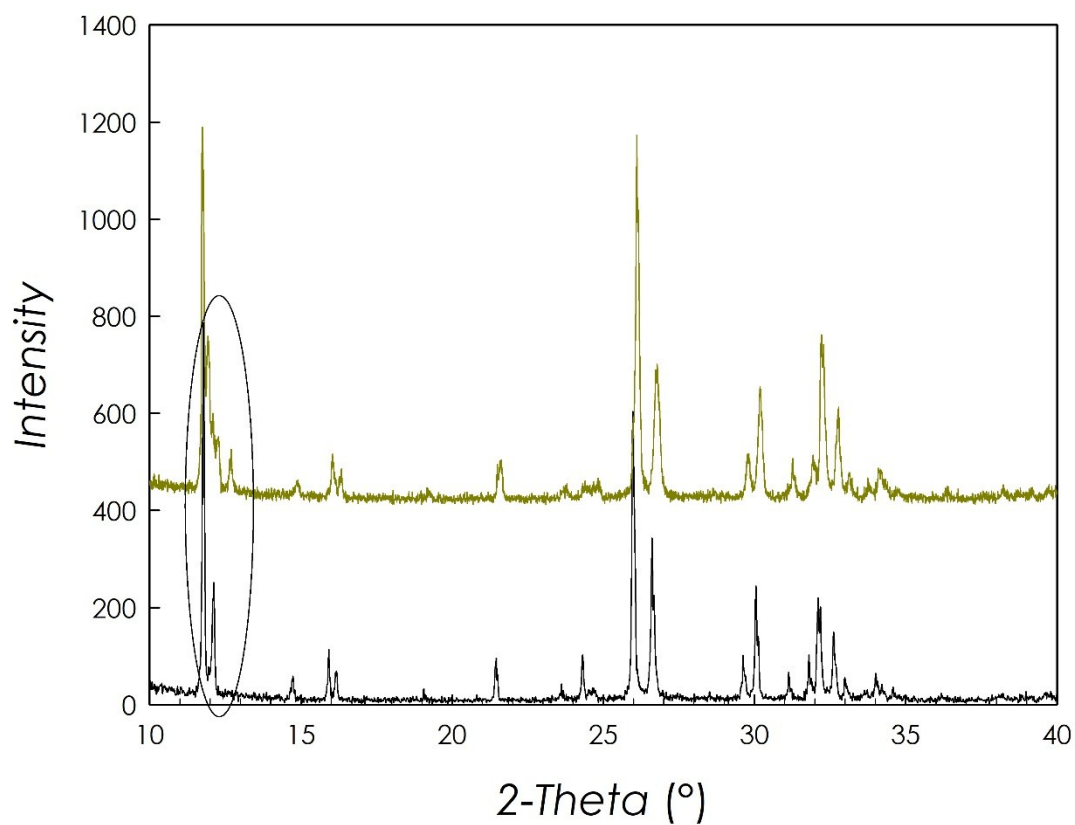


Figure S3: X-ray diffraction pattern of black (bottom) and yellow (top) phases of DMASnI_3 . The intensity in the pattern of yellow phase has been shifted by 400 for ease of visualization.

SAMPLE	H_2 Production ($\mu\text{mol/g/h}$)
$\text{DMASnBr}_3 + \text{DI}$	6
$\text{DMASnBr}_3 + \text{DI} + \text{TEOA } 10\% +$ 1 wt% Pt	11
DI	0.0
DI+TEOA	0.0

Table S2: Results of hydrogen production