两步沉积法制备 Br 或 Cl 撒杂的有机-无机杂化钙钛矿太阳电池

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Organic-Inorganic Hybrid Perovskite Solar Cells Processed with Br or Cl Doping via a Two-Step Deposition

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Fig. S1  Surface and cross-sectional SEM images of the PbI$_2$(DMSO) film (a, b) and PbI$_2$ film (c, d)

Table S1  EDX results of the perovskite solar cells derived from PbI$_2$(DMSO) complex with MAI via intramolecular exchange with different molar ratios of MABr or MACl with Pb as 1 mol.

<table>
<thead>
<tr>
<th>Device</th>
<th>n/mol</th>
<th>Pb (mol/L$^{-1}$)</th>
<th>Br</th>
<th>Cl</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.35</td>
<td>0% MABr</td>
<td>1</td>
<td>3.51</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>5% MABr</td>
<td>1</td>
<td>3.65</td>
<td>0.23</td>
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<tr>
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<td>10% MABr</td>
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<td>3.63</td>
<td>0.24</td>
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<tr>
<td>0.465</td>
<td>10% MACl</td>
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<td>4.09</td>
<td>0.05</td>
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<tr>
<td>MAX</td>
<td>15% MACl</td>
<td>1</td>
<td>3.68</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>20% MACl</td>
<td>1</td>
<td>4.18</td>
<td>0.06</td>
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