

## ***Supplementary Information***

### **Non-stoichiometry and its implications for the properties of PMN-PT thin films**

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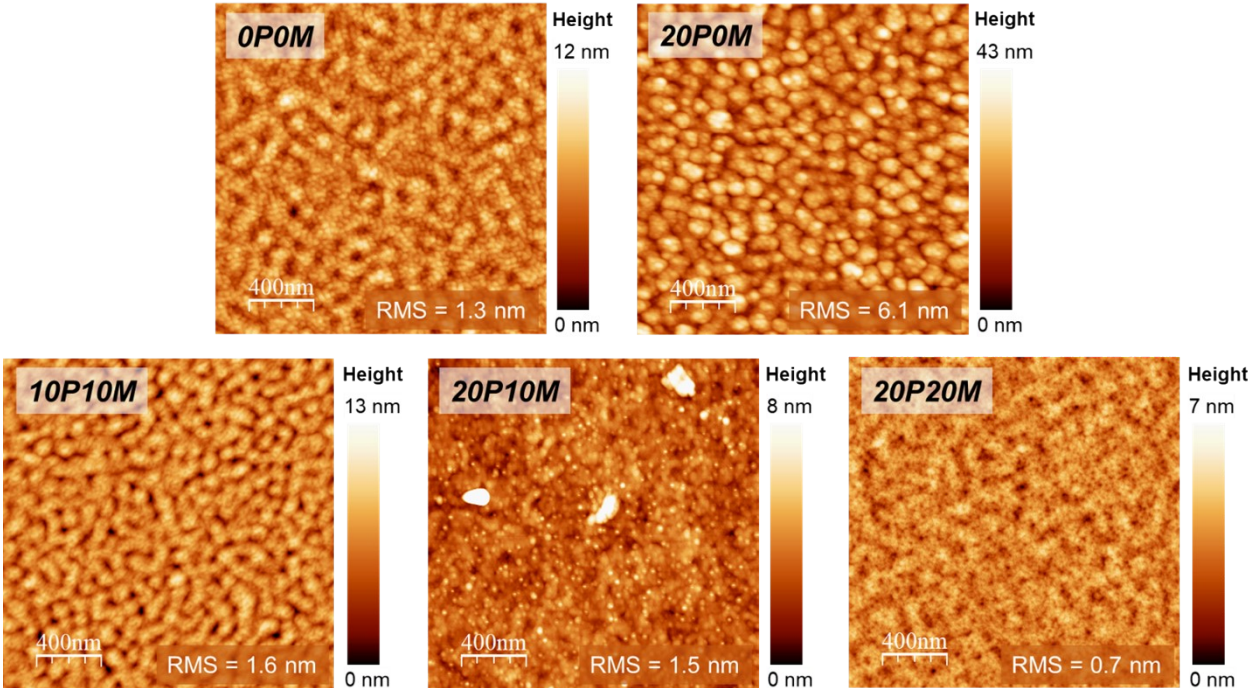
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**S1: FWHM values,  $a$  and  $c$  values from RSMs and calculated  $a_{pc}$  values**

<b>Sample name</b>	<b>FWHM (<math>\theta</math>-<math>2\theta</math>)</b>	<b><math>a</math></b>	<b><math>c</math></b>	<b><math>a_{pc}</math></b>	<b>FWHM (RC)</b>
<i>0P0M</i>	0.064	4.029	4.014	4.024	0.29
<i>20P0M</i>	0.148	4.026	4.024	4.025	0.42
<i>10P10M</i>	0.066	4.027	4.024	4.026	0.28
<i>20P10M</i>	0.103	4.019	4.028	4.022	0.38
<i>20P20M</i>	0.084	4.020	4.026	4.022	0.30

**S2: AFM micrographs of the PMN-PT thin films**



S3: STEM cross-section of the LNO layer, revealing the RP-type defects

