Control of Growth Mode and Crystallinity of Aluminum Doped Zinc Oxide Thin Film at Room Temperature by Self-Assembled Monolayer Assisted Modulation on Substrate Surface Energy

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Figure S1. C1s XPS spectra of pristine and various alkylsilane SAMs modified glass substrates.
Figure S2. AFM images and surface roughness of (a) pristine, (b) C3-SAM, (c) C8-SAM, (d) C12-SAM, and (e) C18-SAM modified glass substrates.
**Figure S3.** SEM images of AZO films deposited at different deposition time 1, 5 and 60 minutes on C8-SAM ((a), (c), and (e)) and C12-SAM ((b), (d), and (f)) modified glass substrates.
Table S1. The optical bangap of AZO thin films deposited on pristine and various alkylsilane SAMs modified glass substrates.

<table>
<thead>
<tr>
<th>AZO films</th>
<th>AZO/glass</th>
<th>AZO/C3/glass</th>
<th>AZO/C8/glass</th>
<th>AZO/C12/glass</th>
<th>AZO/C18/glass</th>
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</thead>
<tbody>
<tr>
<td>$E_g$ (eV)</td>
<td>3.34</td>
<td>3.35</td>
<td>3.36</td>
<td>3.37</td>
<td>3.37</td>
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