Supporting information for

Patterning PEDOT:PSS and Tailoring its Electronic Properties by Water-Vapour-Assisted Nanoimprint Lithography

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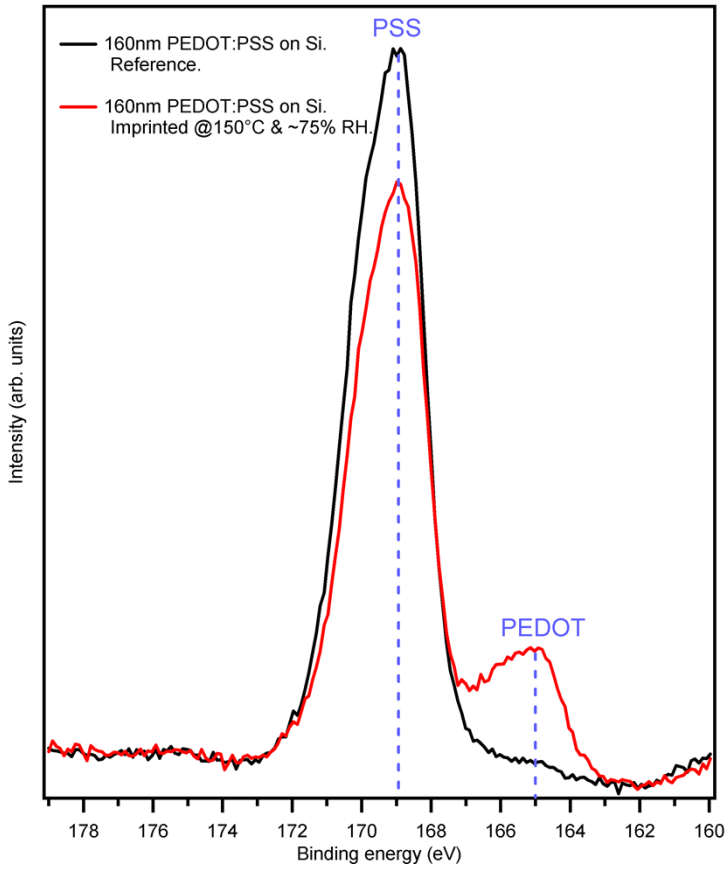
Change of PEDOT to PSS ratio at the surface induced by WVA-NIL process.

XPS measure were performed to confirm the hypothesis that a change of the PEDOT to PSS ratio at the sample surface is induced WVA-NIL process. The result is plot in the image below:



A reference flat untreated sample with 160nm PEDOT:PSS layer on Silicon substrate was compared to an identical film imprinted with a flat silicon mould at 150°C and ~75%RH. The sp2 peak of PSS's and PEDOT's sulfur are located respectively at 169 eV and 165 eV in binding energy. The ratio between the two peaks intensities is representative of the ratio between PEDOT and PSS.[1] A clear reduction of the PSS's peak intensity and an increase of PEDOT's peak intensity after the imprinting process was found, confirming an increase of PEDOT/PSS ratio on the surface. The acid PEDOT:PSS causes partial dissolution of ITO films, leading to the diffusion of In and Sn into PEDOT:PSS layer.[2] The diffused In interacts with S present in PEDOT:PSS,[3] making the measurements more difficult to understand. For this reason the experiment was performed using Si substrate.

1 T.-W. Lee, Y. Chung, *Advanced Functional Materials,* **2008**, *18, 2246–2252,* DOI 10.1002/adfm.200700766.

2 Anirudh Sharma, Scott E. Watkins, David A. Lewis, Gunther Andersson *Solar Energy Materials Solar Cells,* **2011**, 95, 3251–3255, DOI 10.1016/j.solmat.2011.07.012

3 Polona Škraba, Gvido Bratina, Satoru Igarashi, Hirosi Nohira, Kazuyuki Hirose, *Thin Solid Films*, **2011**, 519, 4216–4219