

Supplemental Information

Memristive Devices Based on Mass Printed Organic Resistive Switching Layers

Jörg Strutwolf¹, Yong Chen¹, Johann Ullrich¹, Martin Dehnert², Arved C. Hübner¹

¹Institute for Print and Media Technology, Chemnitz University of Technology, 09107 Chemnitz, Germany

²Institute of Physics, Chemnitz University of Technology, 09107 Chemnitz, Germany

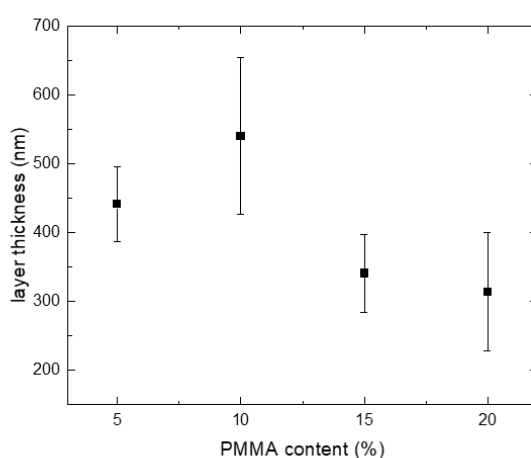


Figure S1 Layer thickness as a function of PMMA content. The layer thicknesses were measured using a Dektak XT stylus profilometer and are the result of measuring six printed samples of each polymer blend at three different locations.

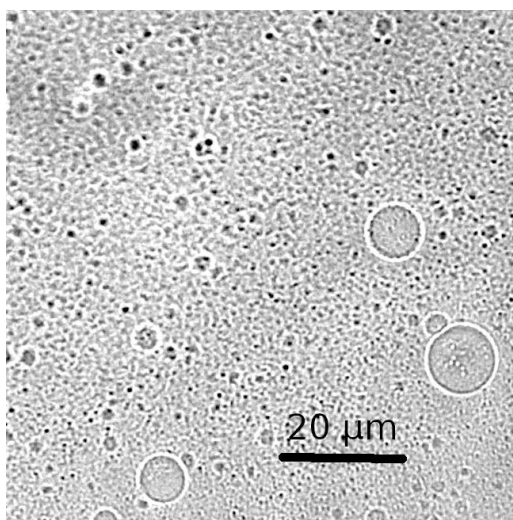


Figure S2 Optical microscopic image of a drop coated layer of PVA:PMMA blend with 20 wt% PMMA content.

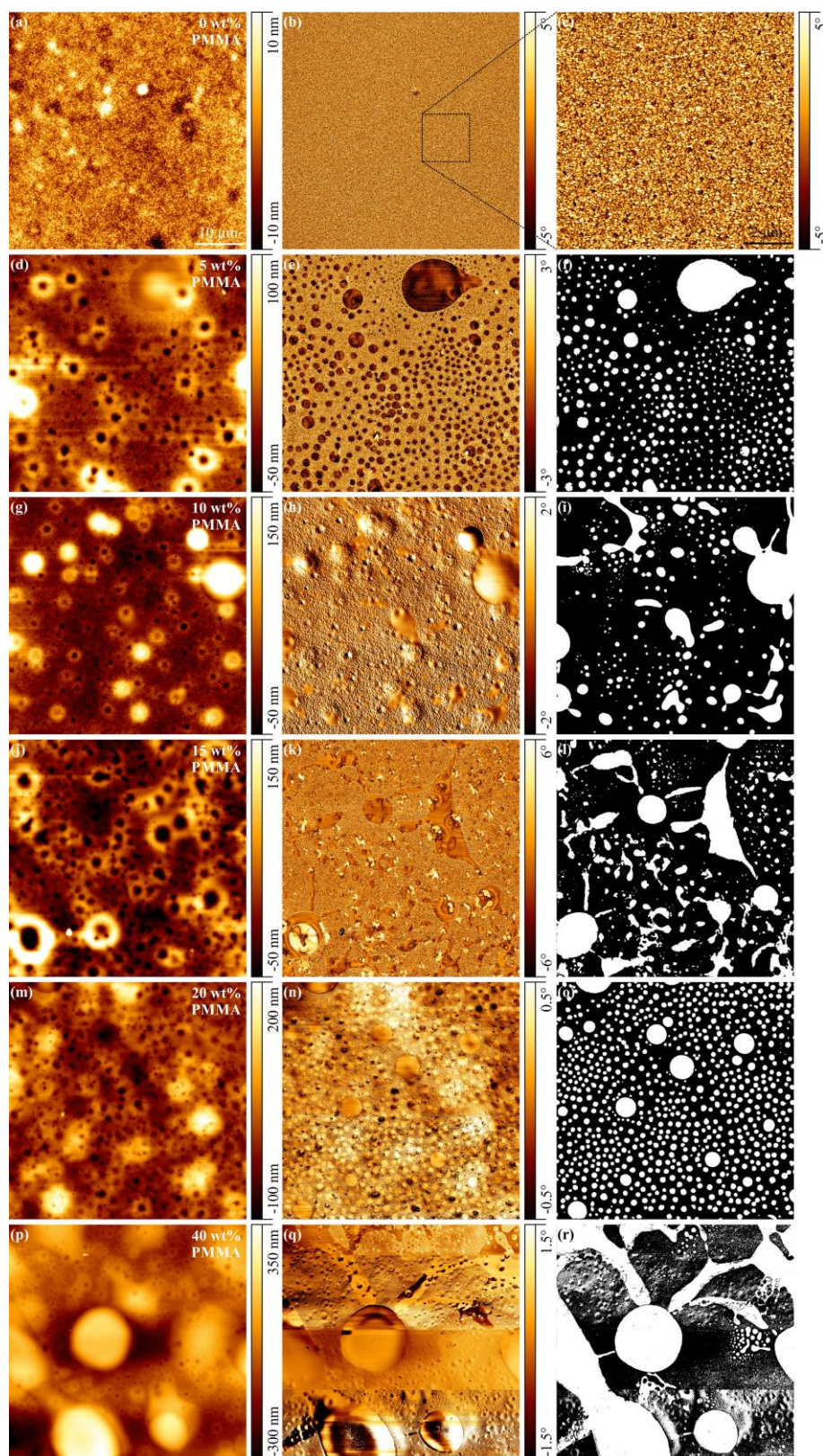


Figure S3 AFM: AM-AFM images of PMMA:PVA blend surfaces. PMMA content (wt%) (a–c) 0, (d–f) 5, (g–i) 10, (j–l) 15, (m–o) 20, and (p–r) 40. The first column shows AM-AFM height images, the second column shows AM-AFM phase images, and the third column shows a binary image, where white is the PMMA-rich domain and black the PVA-rich domain. The binary images were created with the AM-AFM phase image. (c) Magnification of (b) from the area marked with a rectangle.

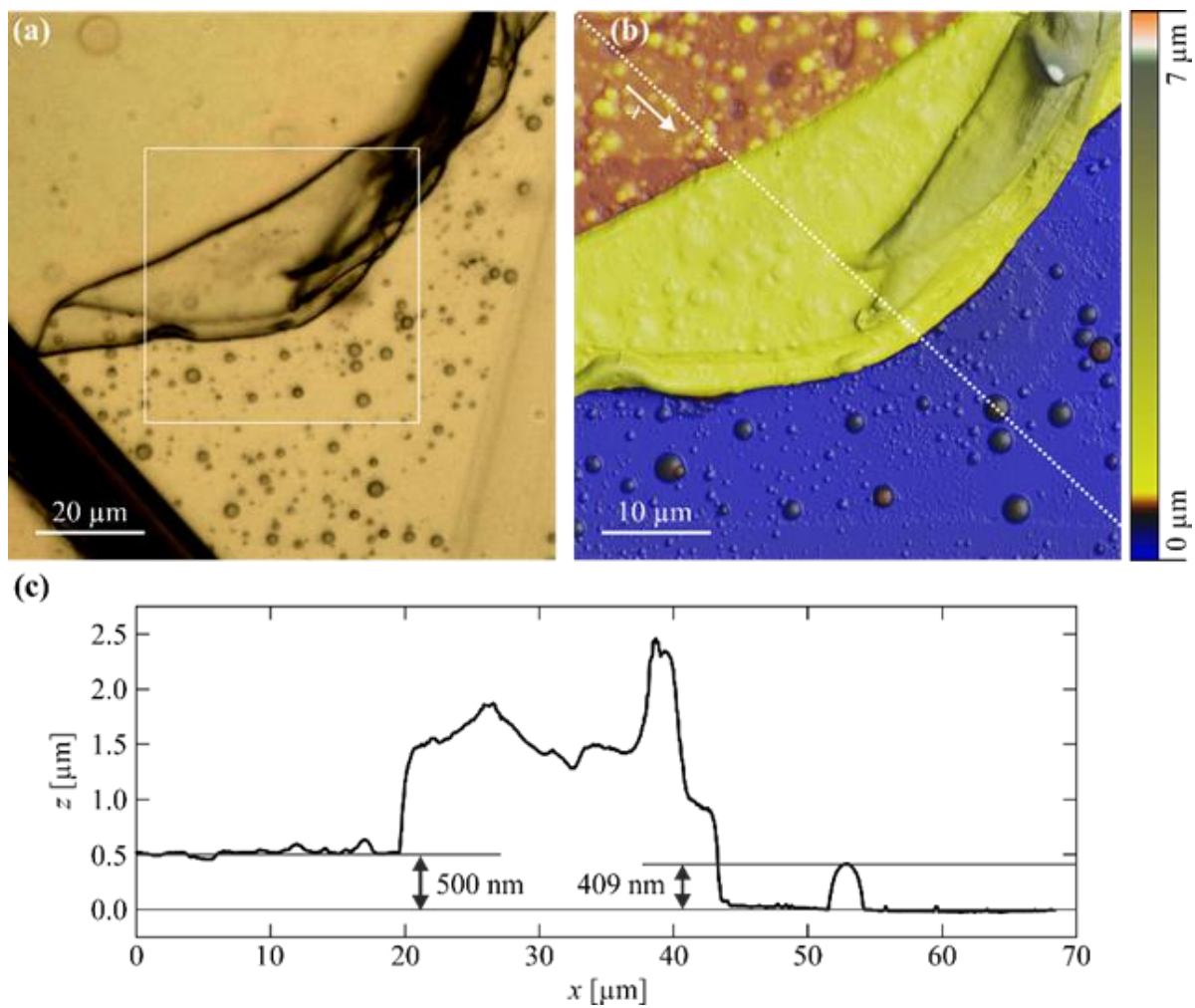


Figure S4 Optical microscope image (a) and AM-AFM height image (b) of a folding of the active layer of a PMMA:PVA blend with 10 wt% PMMA content. (c) AFM height profile of the dashed line in (b).

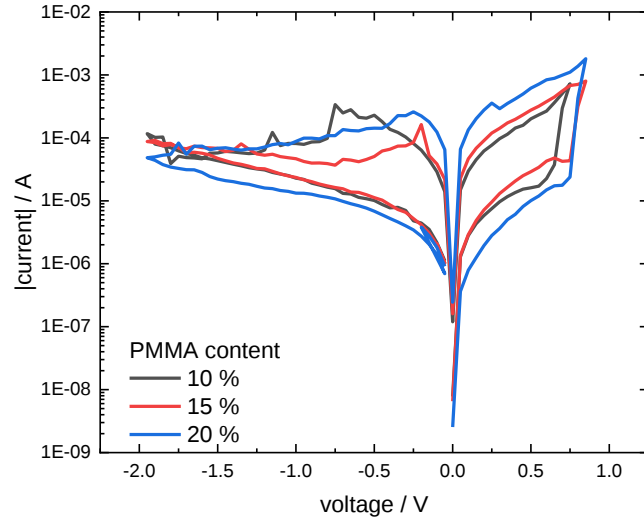


Figure S5 Comparison of the typical I - V behavior for active layers with 10, 15 and 20 wt% PMMA content.

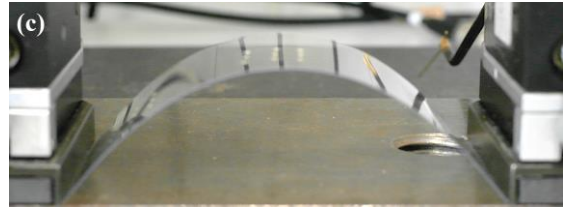
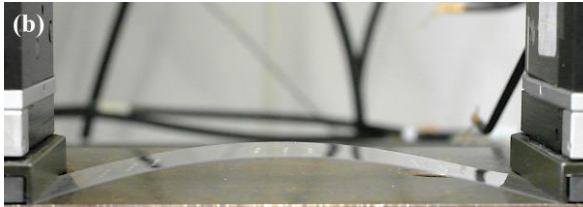
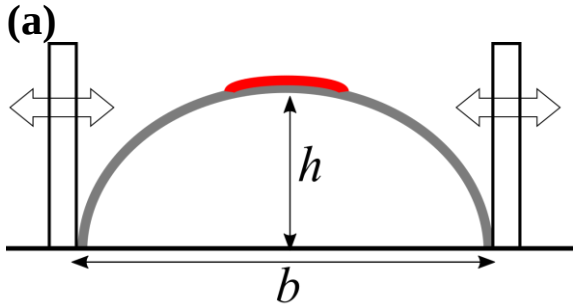


Figure S6 (a) Schematics of the bending device where b is the distance between movable clamps and h is the height of the sample peak. The radius near the sample peak (red line) is approximated by $r=b^2/8/h$ [1], Photos of the bending fixture showing bending radii r of 156.2 mm **(b)** and 33.9 mm **(c)**.

[1] Schwarz C, Kaiser M, Jacob SF, Schindler C (2016), Phys Status Solidi Appl Mater Sci 213:1353–1357.