Electronic Supplementary Material (ESI) for RSC Advances.

SUPPORTING INFORMATION

A SIMPLE LOW-COST METHOD TO ENHANCE LUMINESCENCE AND FLUORESCENCE SIGNALS IN PDMS-BASED MICROFLUIDIC DEVICES

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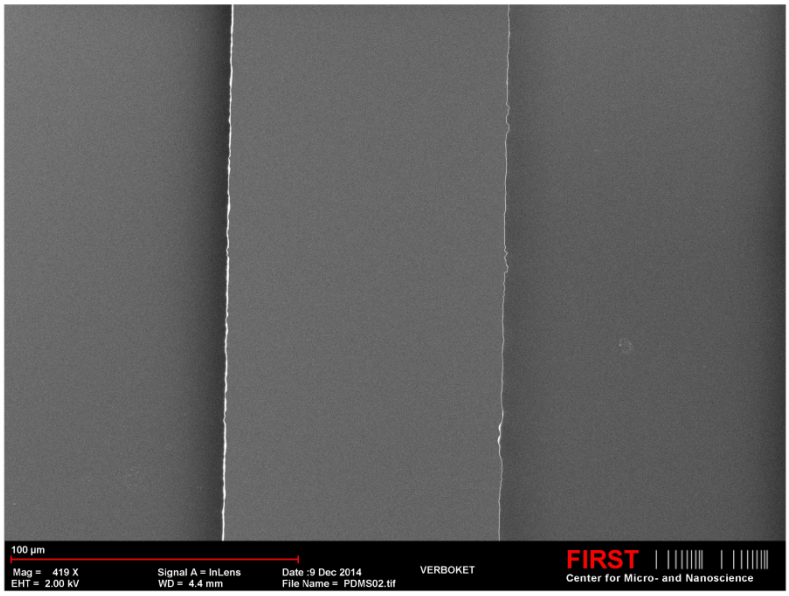
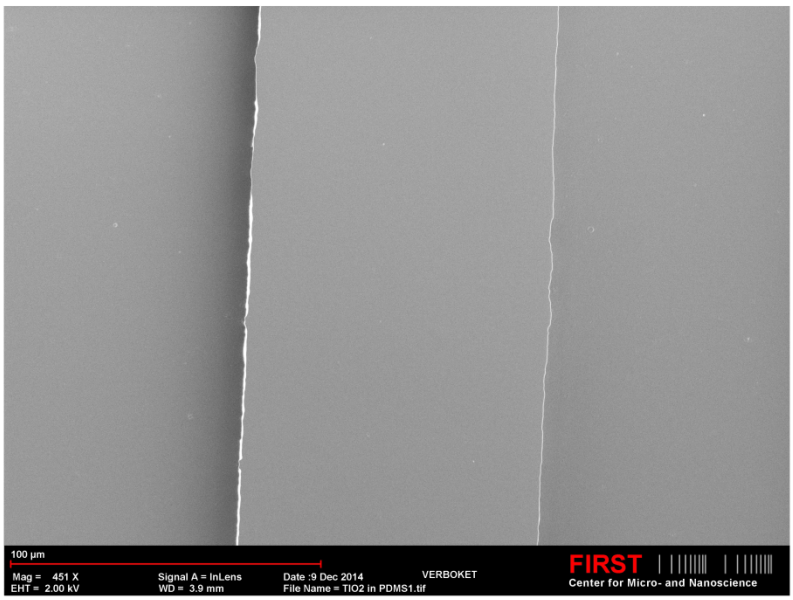
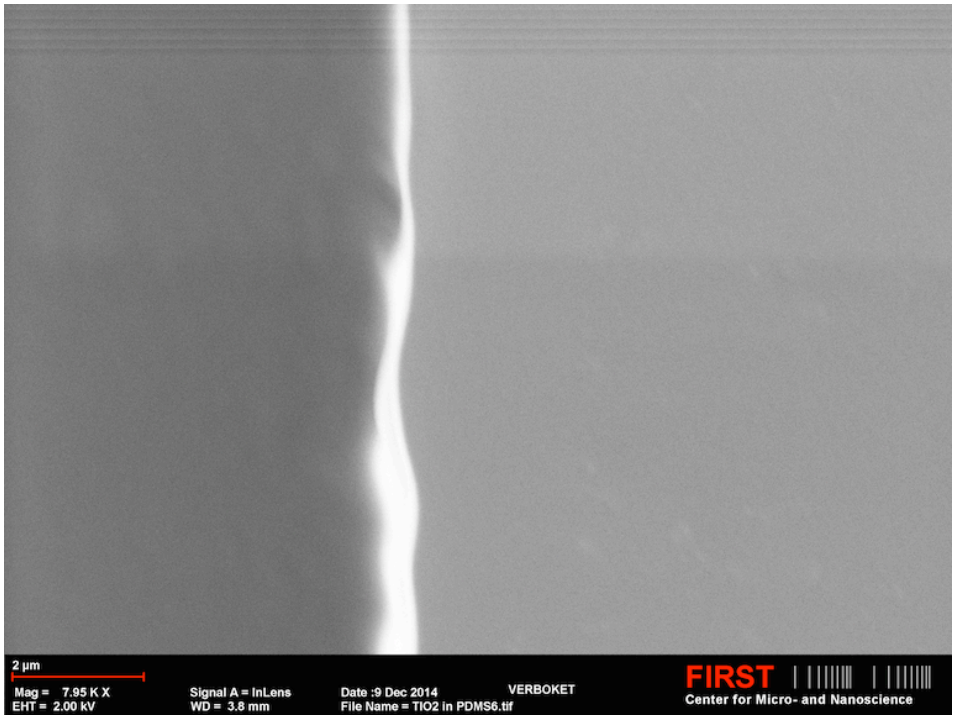
a)



b)

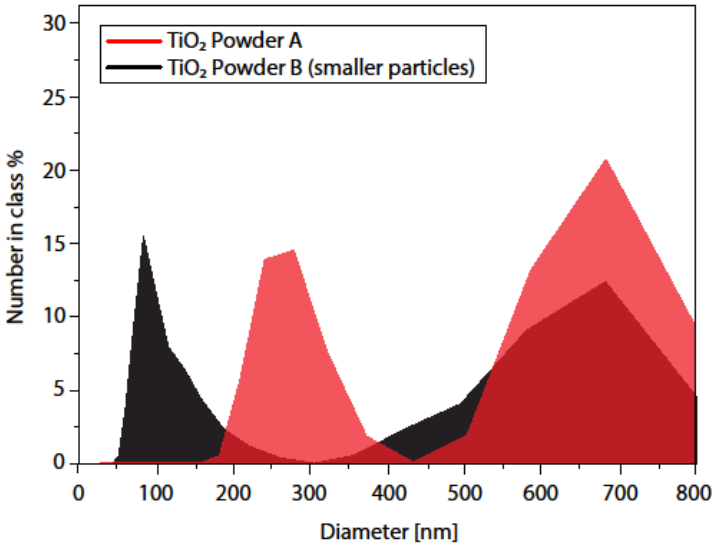


SI Figure 1: SEM images of microfluidic channels composed of pure PDMS (a) or PDMS-TiO_2 composite (b). There is no visible difference in the surface roughness. The channel walls have a roughness that is mainly given by the quality of the master (i.e. the roughness of the photoresist). From these findings, we believe that the particles are fully embedded in the PDMS. Even near the surface they are always fully covered by PDMS so there is no influence on the surface properties (see also SI Figure 2 and 3).



SI Figure 2: Zoomed in SEM image of the channel edge of a PDMS-TiO_2 composite chip. No irregularities in the surface can be seen, i.e. no particles are protruding out of the side walls into the channel.

SI Figure 3: SEM picture of the surface of the channel ceiling at high resolution.



SI Figure 4: Particle size determined by dynamic light scattering measurements. Powder B has a smaller particle size than Powder A. In both preparations aggregates with larger diameters are present. We assume that this fact is due to non-efficient and/or stabilized suspension of the particles using our protocol.