Supporting Information for:

Development of a sticker sealed microfluidic device for in situ analytical measurements using synchrotron radiation

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A. Microfabrication method: channel preparation and electrode deposition

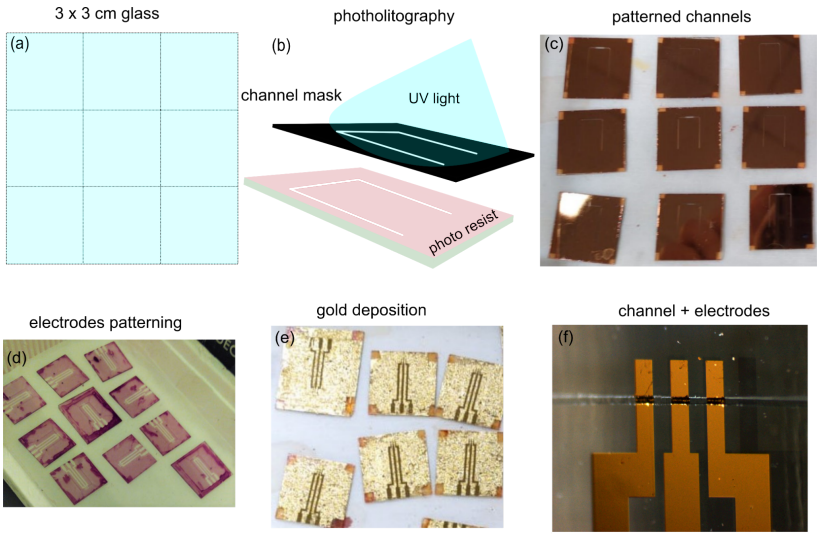

Figure S1: First steps of the microfabrication process. (a-c) The sequence of the channels preparation on glass and (d-e) Photolithography preparation of the electrodes and their deposition by magnetron sputtering on the channel. (f) Result for a non-sealed device (C1) with the three electrodes integrated on the channel.

B. X-ray transmission coefficient and attenuation length

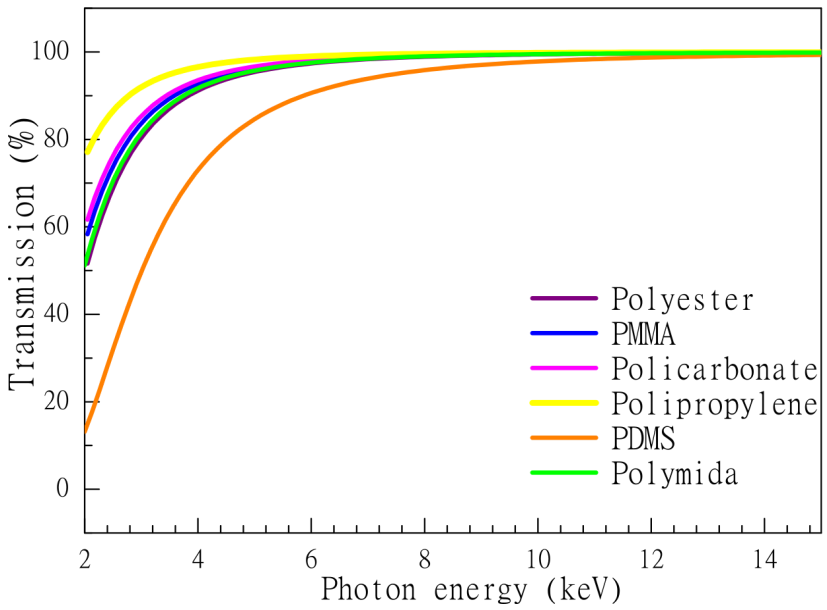

Figure S2: X-ray transmission of some polymers (12 μm thick) commonly applied in microfluidic devices. The photon energy range varies from 2 to 15 keV[1].

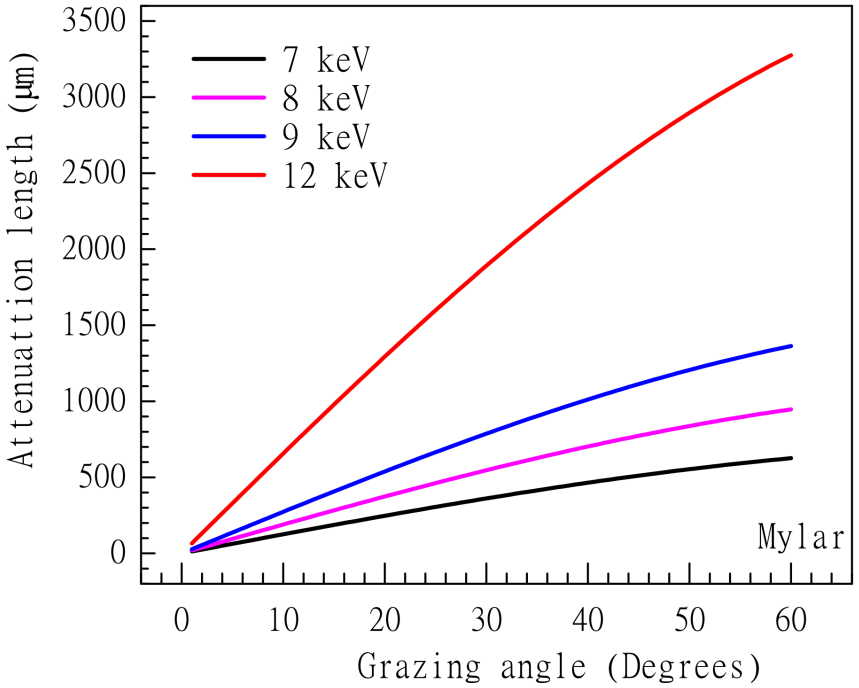

Figure S3: Angle-dependent attenuation length for the polyester film (Mylar). For lower energies (7-8 keV) the attenuation length at 1° is comparable to the polyester thickness (12 μm), meanwhile above 9 keV is twice or three times higher[1].

C. X-ray scattering path at grazing and high incidence angle

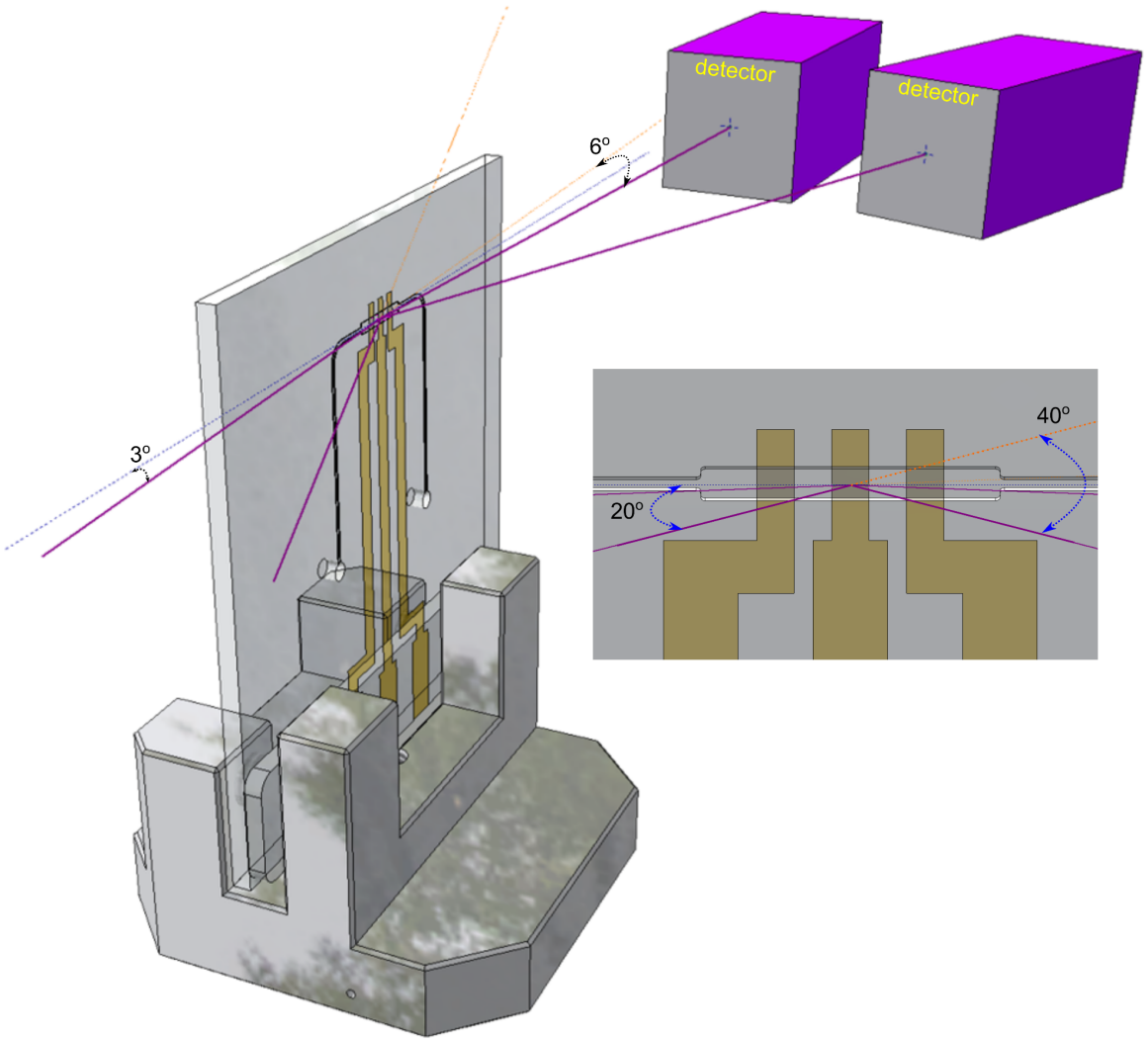

Figure S4: Schema of the scattering path in diffraction experiments at grazing and high angles. The beam enlarges following the channel direction.

References

[1] B.L. Henke, E.M. Gullikson, and J.C. Davis. *X-ray interactions: photoabsorption, scattering, transmission, and reflection at E=50-30000 eV, Z=1-92*, Atomic Data and Nuclear Data Tables Vol. 54 (no.2), 181-342 (July 1993)