

Microfluidic cell

Beamline: Sylmand

Contact: Garth Wells

This microfluidic cell project is in early stage development, with development work on electrochemical and biological applications. Devices have been fabricated at 14 m/pixel resolution.

Proof-of-concept experiments demonstrate imaging of hydrogen-deuterium exchange in co-flowing liquid media at steady state. More details can be found in T. A. Morhart et al., *Anal. Methods* 11, 5776 (2019).

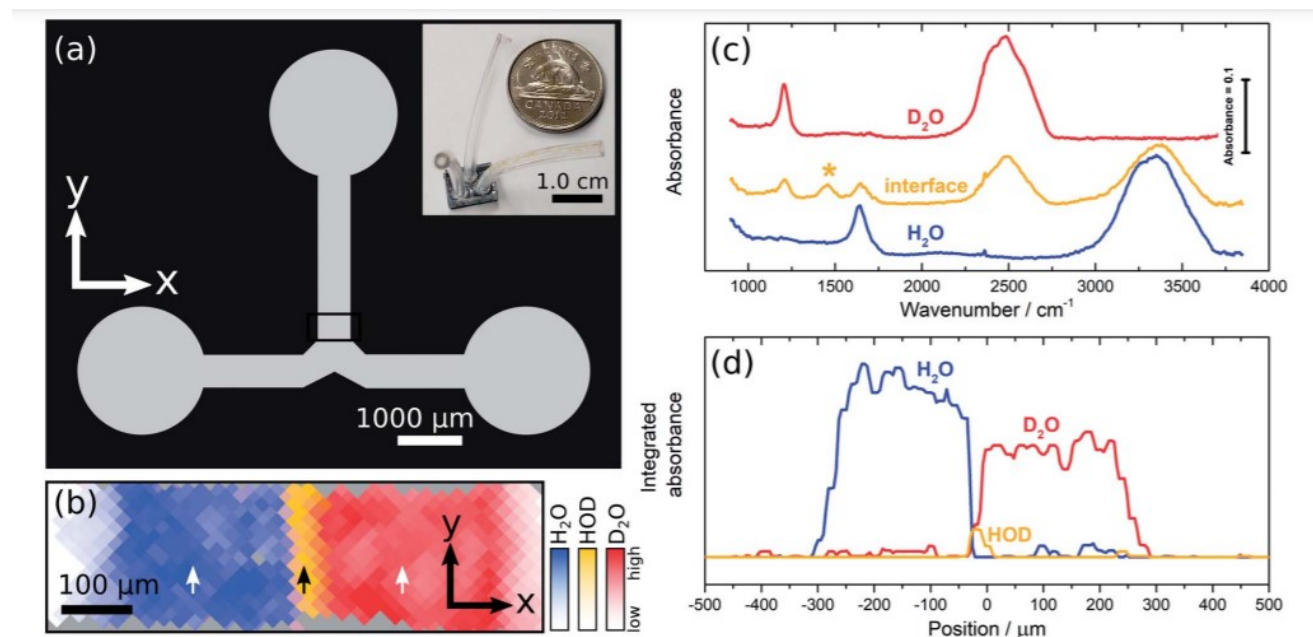


Fig. 6 ATR imaging of a microfluidic device. (a) Schematic of the co-flow channel employed in this work. The white rectangle indicates the area imaged in (a). The inset shows a photograph of the finished device. (b) Composite colour-mapped image of H/D exchange in the microchannel under flow. From left to right, integrated band intensities are colour-mapped as follows: H₂O – blue, HOD – orange, D₂O – red. Pixels with no signal are shown in grey. The region shown has been extracted from ROI1 on the detector (*vide supra*). (c) Representative spectra from locations marked with arrows. The * denotes the characteristic HOD bending mode. (d) Profiles extracted by integrating the relevant bending modes along the line defined by the arrows in (b).