## SUPPLEMENTARY INFORMATION

## AFM cantilever with in-situ renewable mercury microelectrode

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## Experimental Details Photographs of the experimental setup



Figure S1. Inverted optical microscope covered with plastic foil.



Figure S2. Experimental setup, on the right the syringe next to the pressure sensor and translation motor on the left.



**Figure S3.** Fountain pen probe connected to a polycarbonate block with fluidic and electric connections. The probe is placed above the ITO electrode with O-ring containing the electrolyte solution.



Figure S4. Syringe filled with mercury and positioning table to move the plunger of the syringe.