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Electronic Supplementary Information



Fig. S1 Optical microscopic image of a 300 nm radius Wollaston-based UME tip (1000 fold magnification). The calculated RG was ~ 20 .



Fig. S2 Experimental current–distance curves and corresponding theoretical curves obtained with a 300 nm radius Wollaston-based Pt UME by approaching an insulating glass substrate and a conducting gold-coated glass substrate (fitted as per the theory from references: R. Cornut and C. Lefrou, *J. Electroanal. Chem.*, 2007, **604**, 91–100; C. Lefrou, *J. Electroanal. Chem.*, 2006, **592**, 103–112). The probe potential was 0.3 V and the approach rate was 0.25 μ m s⁻¹. The experiment was carried out in 1.5 mM ferrocenemethanol solution (0.25 M KNO₃ as supporting electrolyte, pH 5 adjusted with acetic acid). The electrochemically calculated radius of the Pt probe was ~ 330 nm with fitted RG value ~ 27.



Fig. S3 Optical microscopic image of an interdigitated Micrux electrode with 3 μ m Pt strips separated by 2 μ m distance (non-conductive Pyrex material).



Fig. S4 Transmission electron microscopic image of synthesized gold nanowires.