

## Optimization of High-Density Fe-Au Nano-Arrays for Surface-Enhanced Raman Spectroscopy of Biological Samples

Giovanni Marinaro<sup>1</sup>, Maria Laura Coluccio<sup>2</sup>, Francesco Gentile<sup>2</sup>

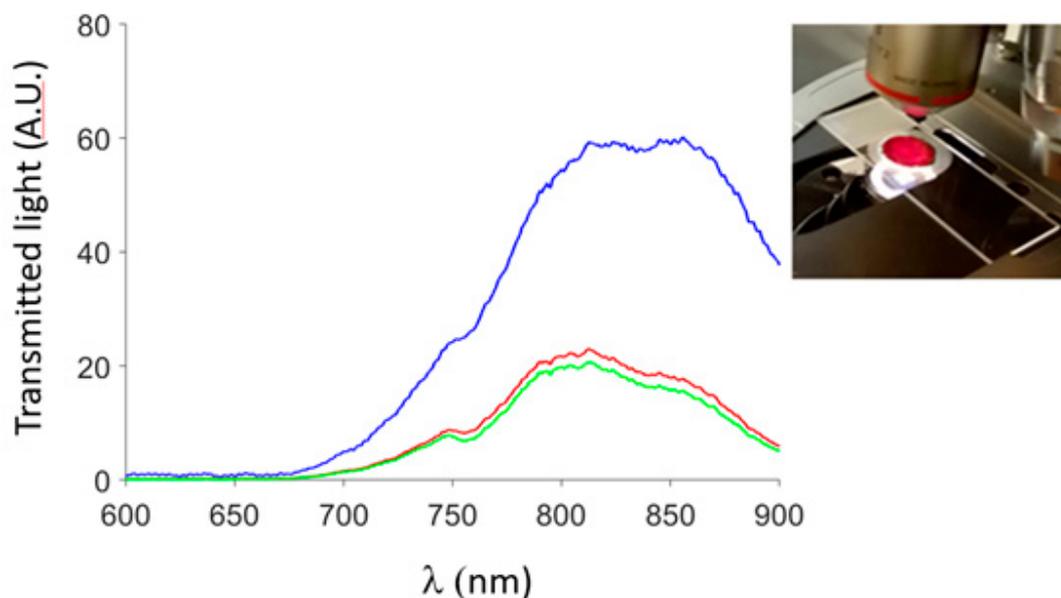
<sup>1</sup> Institute of Process Engineering, Technische Universität Dresden, 01069 Dresden, Germany

<sup>2</sup> Nanotechnology Research Center, Department of Experimental and Clinical Medicine, University of Magna Graecia, 88100 Catanzaro, Italy

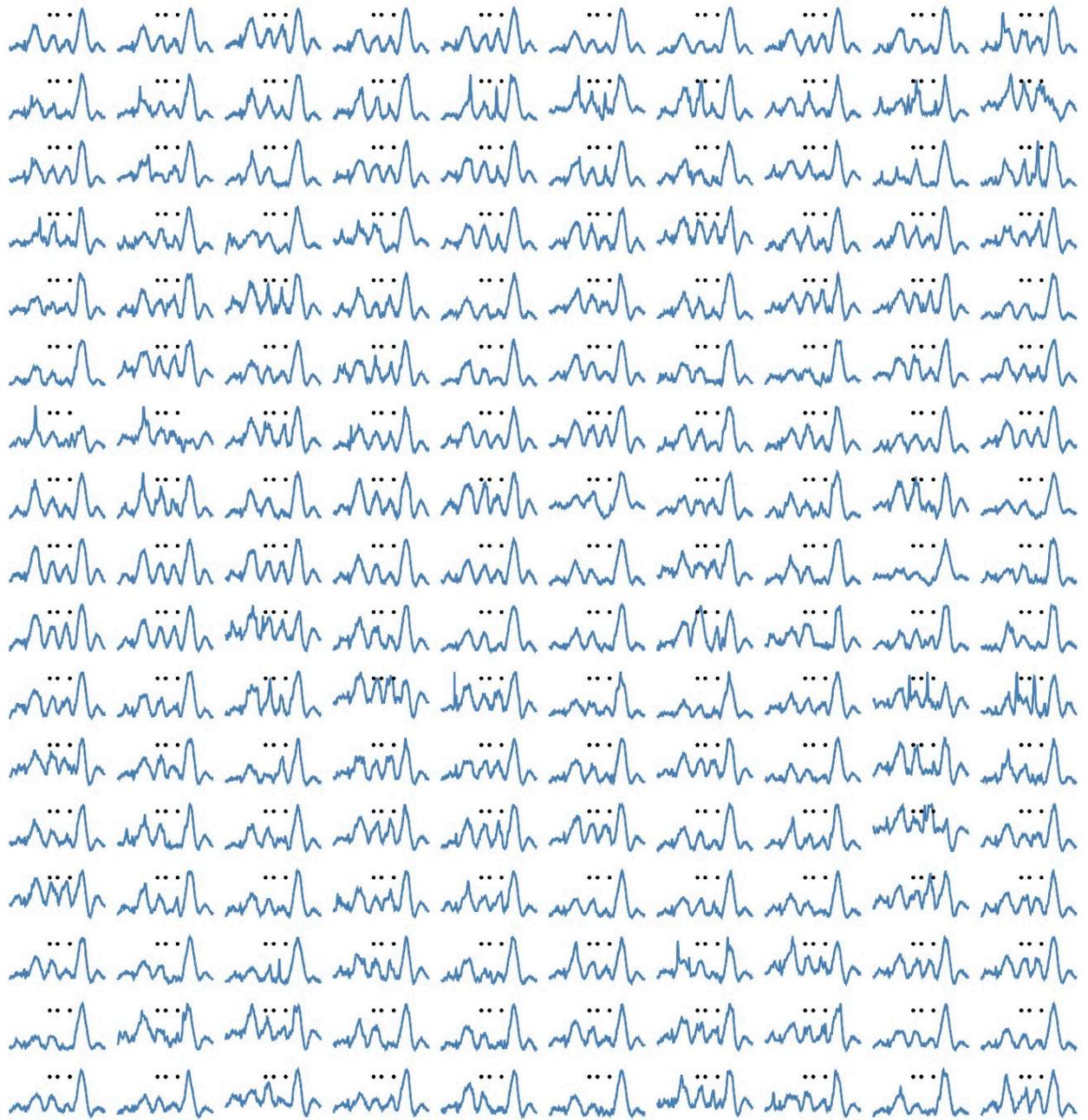
Corresponding author: [giovanni.marinaro@kaust.edu.sa](mailto:giovanni.marinaro@kaust.edu.sa)

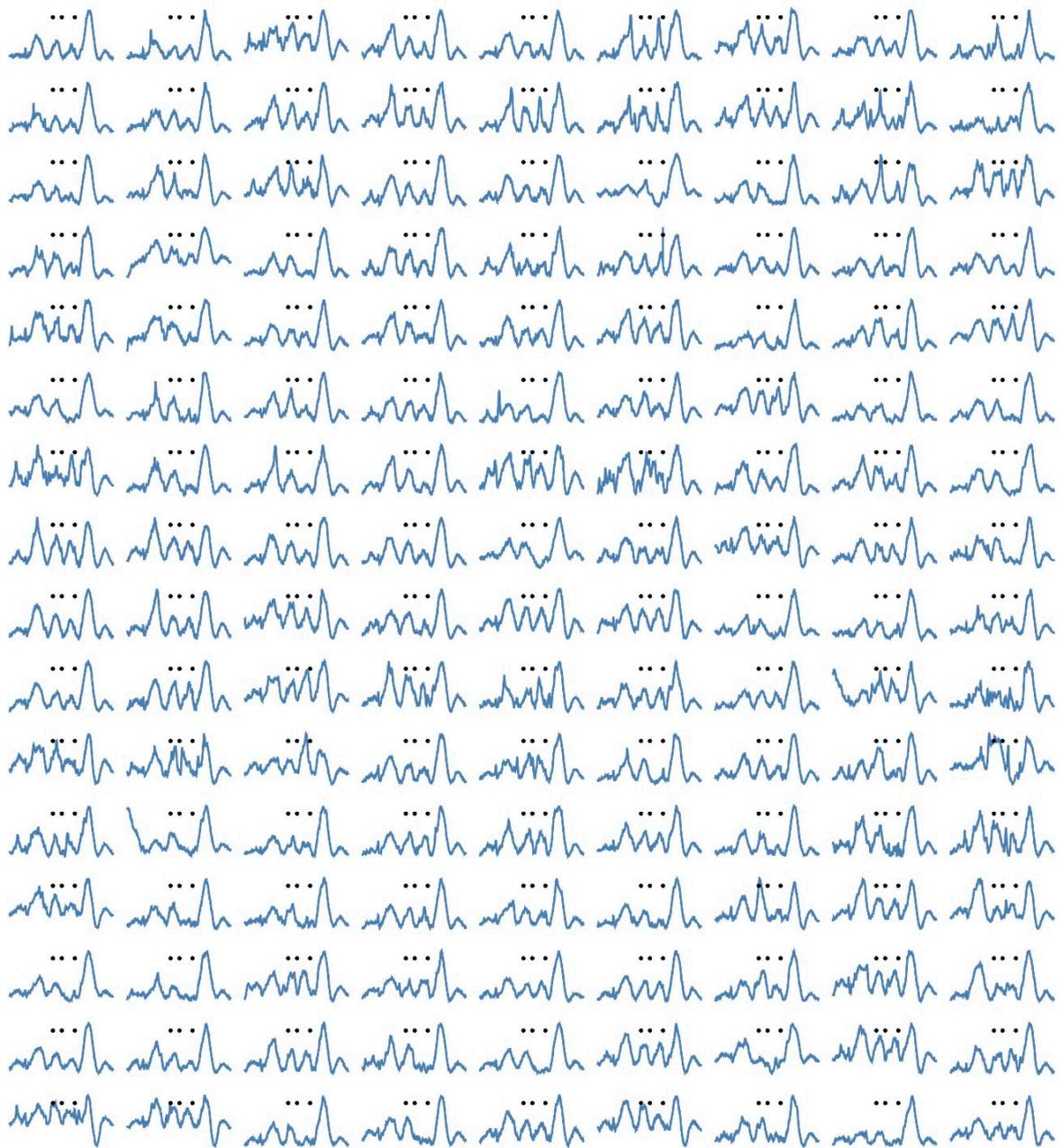


**Figure S1.** Etching process of porous alumina. The samples are upside down and floating on chrome solution which is kept at 40 °C.

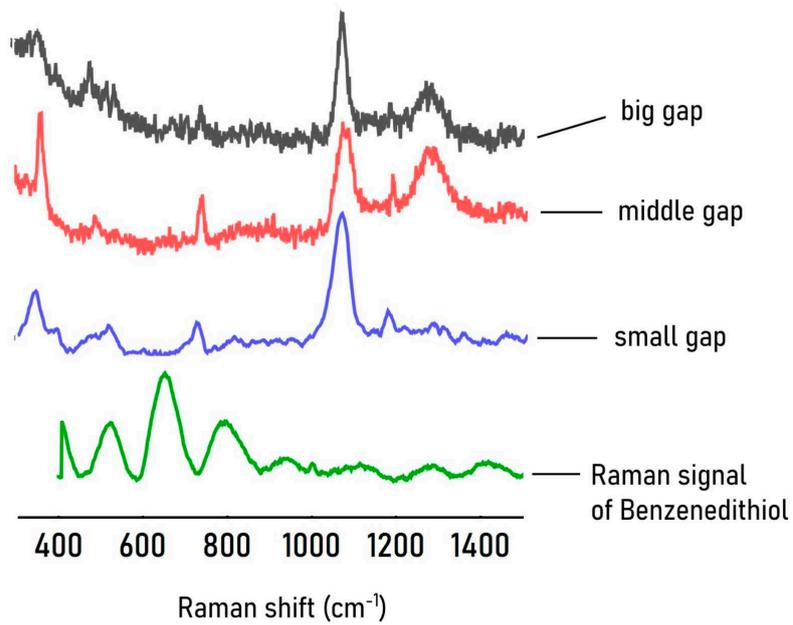


**Figure S2.** Etching process of porous alumina. The samples are upside down and floating on chrome solution which is kept at 40 °C.





**Figure S3.** Complete set of Raman spectra acquired over the active area of the sensor device.



**Figure S4.** SERS signal coming from Benzenedithiol (BDT) measured by the nanowires sensor device with three different configurations (big, middle, small gap) compared to the Raman spectrum of BDT acquired over a flat non-SERS substrate (flat Silicon surface). In the image, all spectra are individually normalized to the maximum peak in the spectral range.