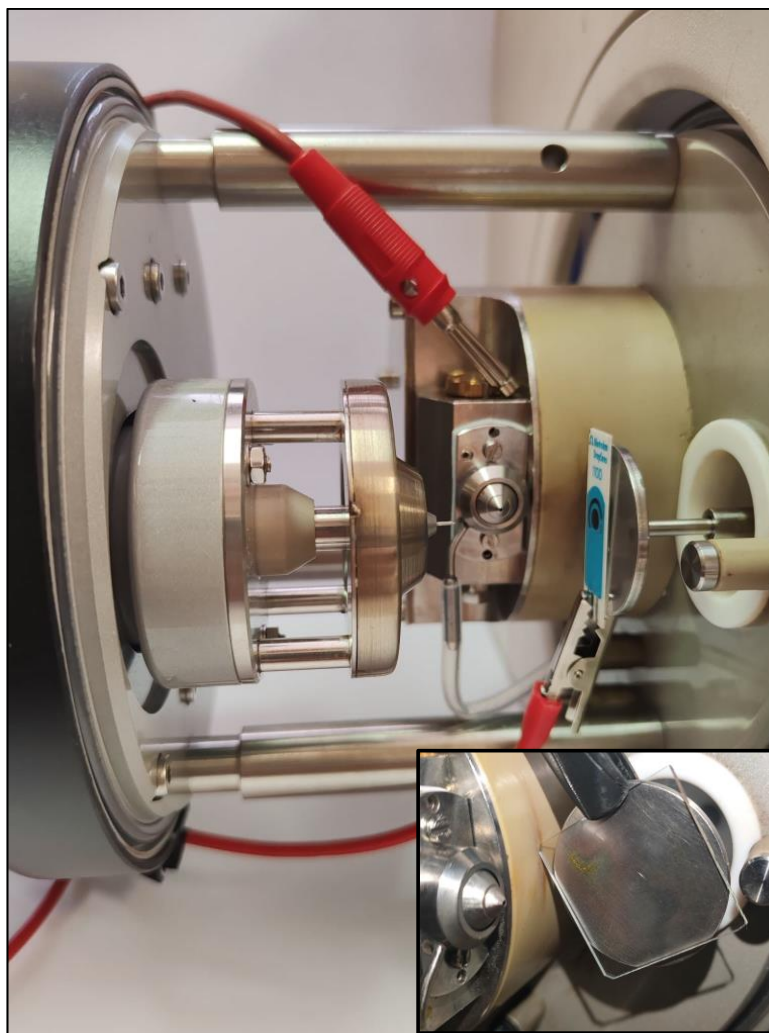


## Supplementary Materials

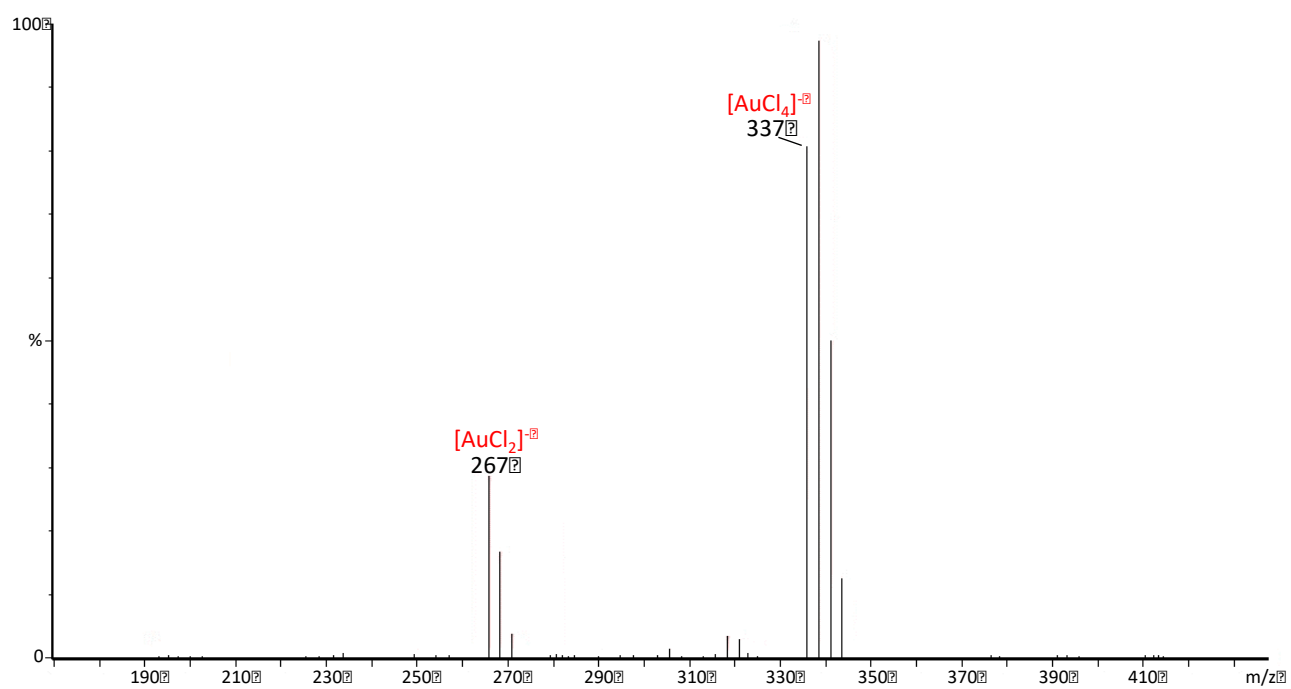
### Charged microdroplets deposition for nanostructured-based electrode surface modification

Rosaceleste Zumpano <sup>1\*</sup>, Marco Agostini <sup>1</sup>, Franco Mazzei <sup>1</sup>, Anna Troiani <sup>1</sup>, Chiara Salvitti <sup>1</sup>, Marta Managò <sup>1</sup>, Alessia Di Noi <sup>1</sup>, Andreina Ricci<sup>2</sup> and Federico Pepi <sup>1,\*</sup>

1. Department of Chemistry and Drug Technologies, "Sapienza" University of Rome, P.le Aldo Moro 5, 00185 Rome, Italy
2. Department of Mathematics and Physics, University of Campania L. Vanvitelli, Viale Lincoln 5, 81100, Caserta, Italy.



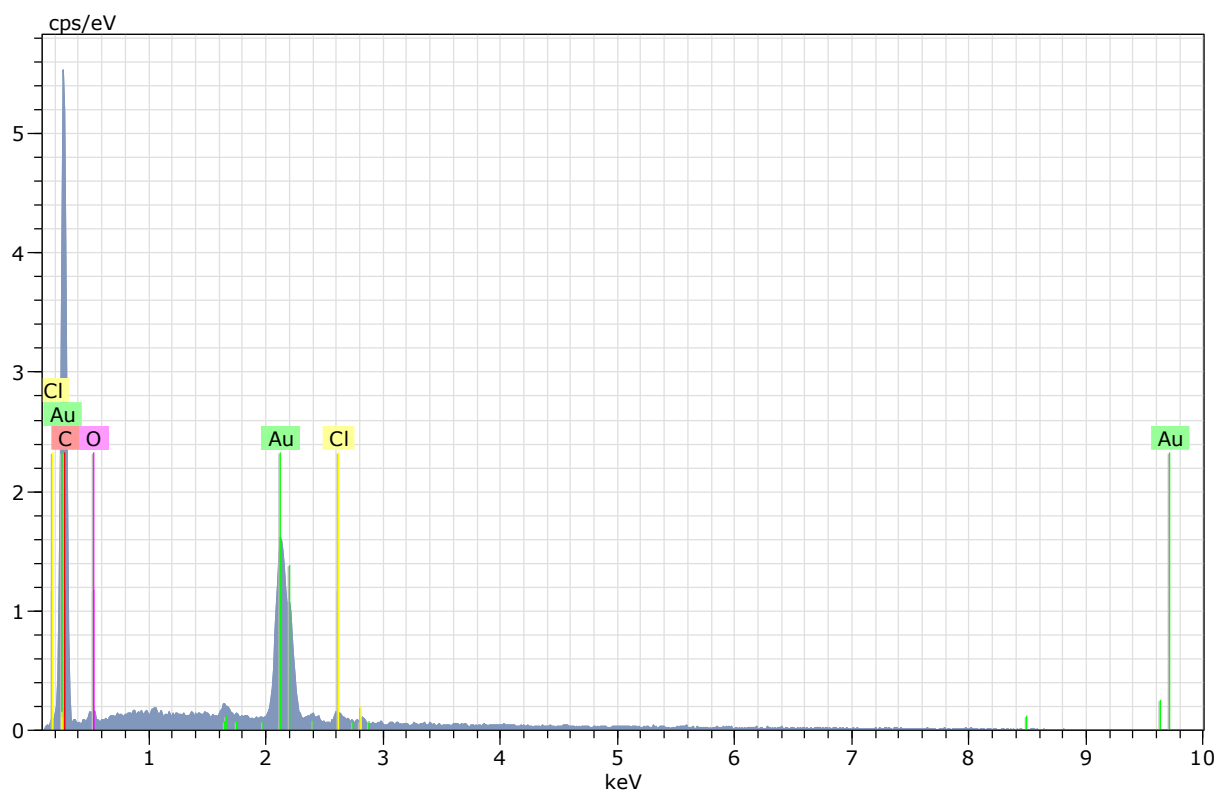
**Figure S1:** ESI Z-spray source apparatus for charged microdroplets deposition onto screen-printed electrodes. Inset: Gold particles deposited onto a glass slide after 1 hour of  $6.4 \times 10^{-4}$  M  $\text{HAuCl}_4$  solution deposition.



**Figure S2:** ESI negative mass spectrum of  $6.4 \times 10^{-5}$  M  $\text{HAuCl}_4$  water solution.



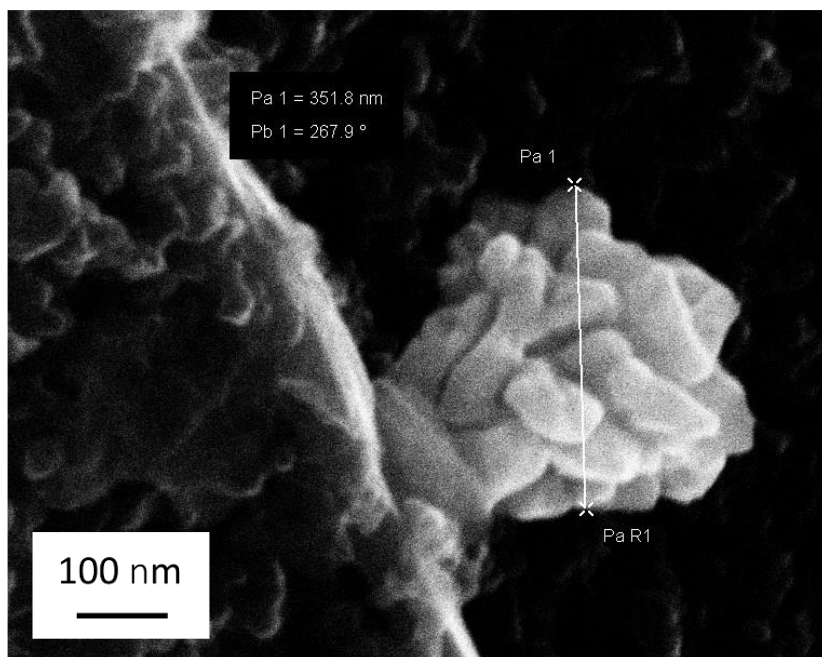
**Figure S3:** ESI positive mass spectrum of  $1 \times 10^{-5}$  M Fc-hexanethiol methanol solution.



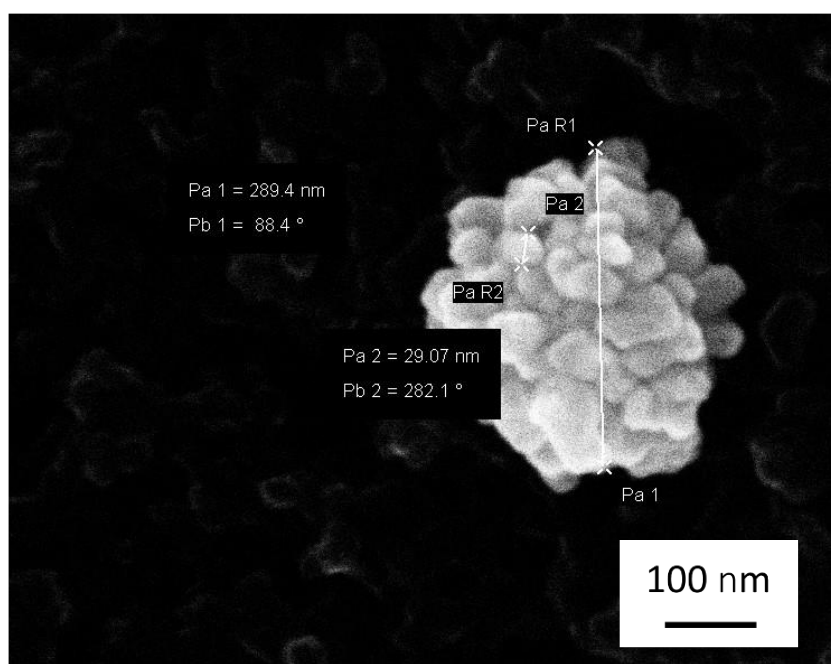
**Figure S4:** EDX analysis of the graphite screen-printed electrode after 10 minutes of microdroplets deposition of  $\text{HAuCl}_4$  solution.

**Table S1.** Parameters obtained by EIS fitting.

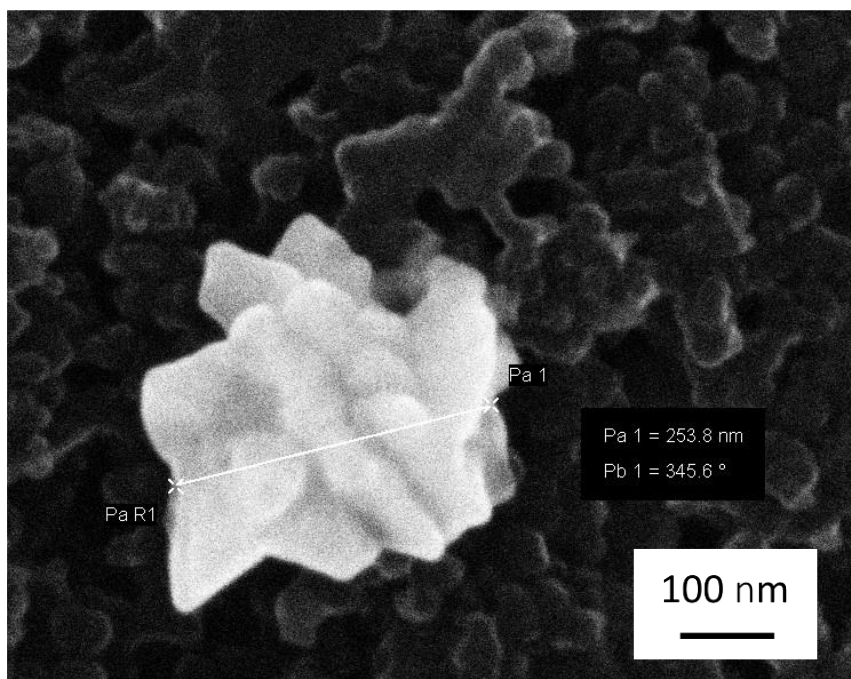
Deposition time	$R_{CT} (\Omega)$	$R_{AuI} (\Omega)$	$W (\sigma)$
0	3423	/	648
2	2515	/	583
4	1258	479	563
10	1246	186	516



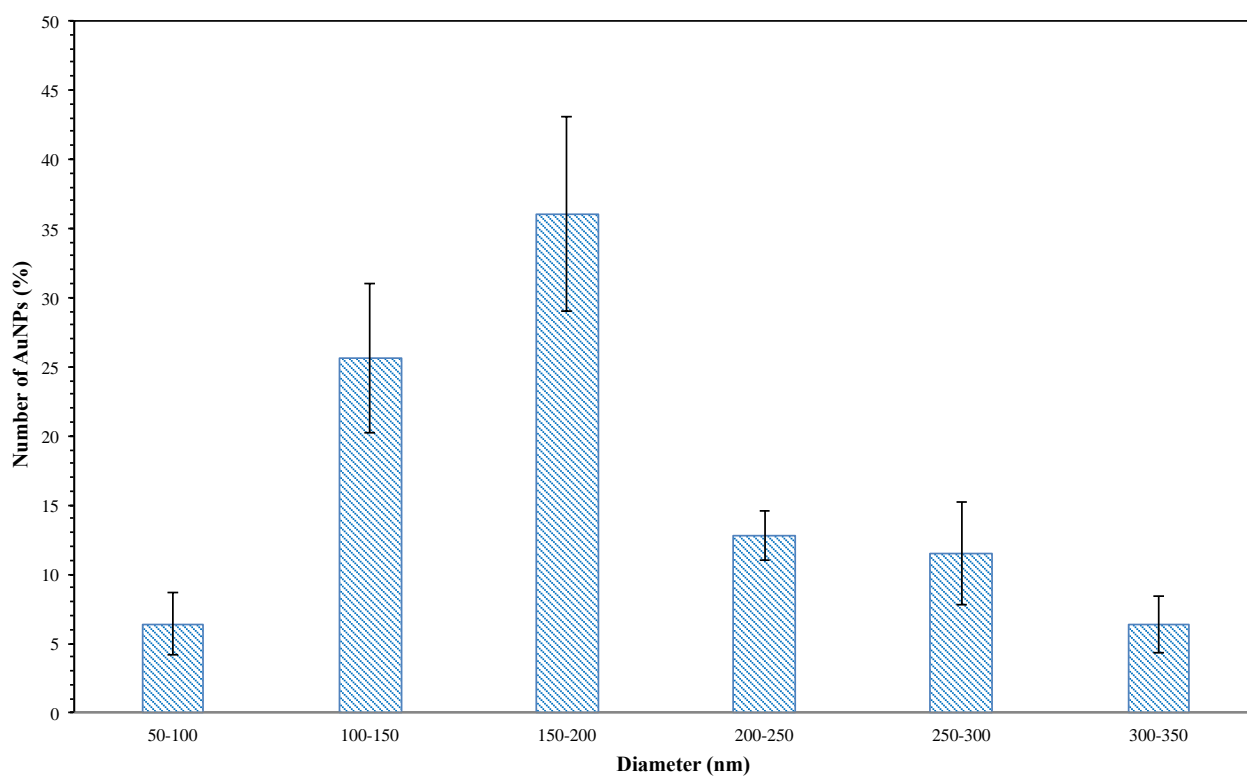
**Figure S5:** SEM image reporting the enlargement of AuNPs aggregates obtained with 2 minutes of deposition.



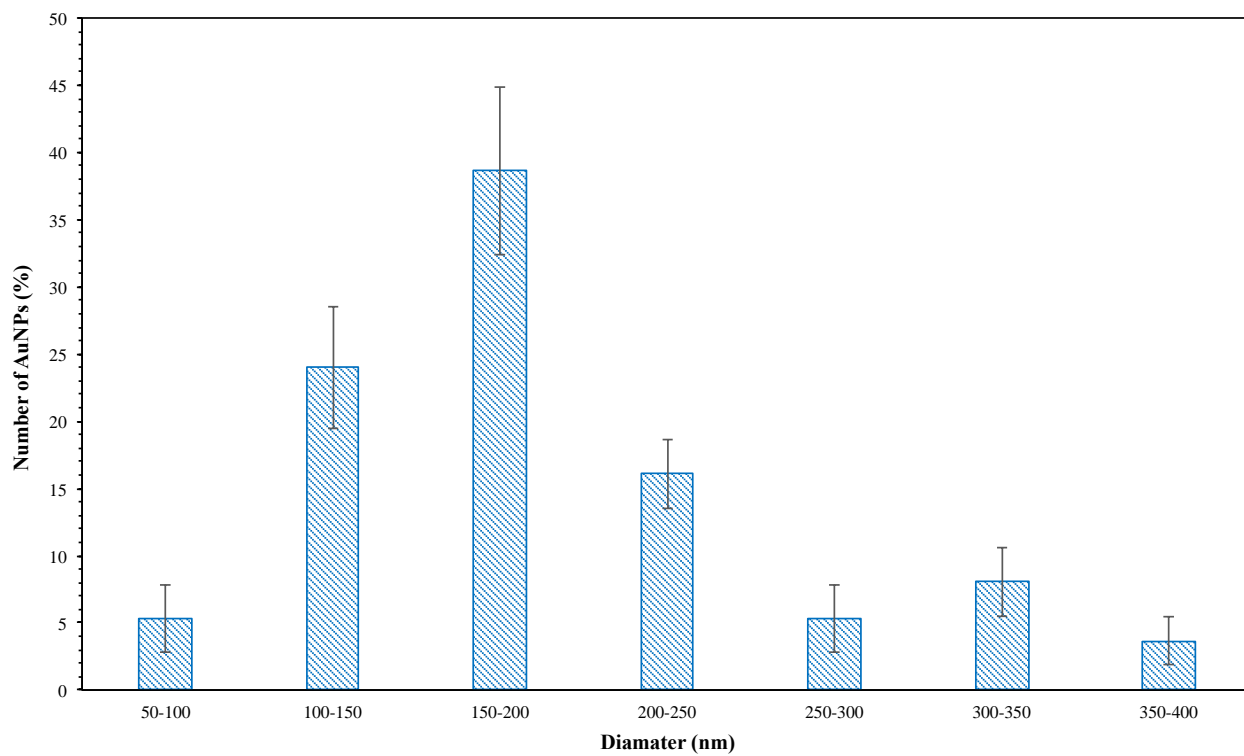
**Figure S6:** SEM image reporting the enlargement of AuNPs aggregates obtained with 4 minutes of deposition.



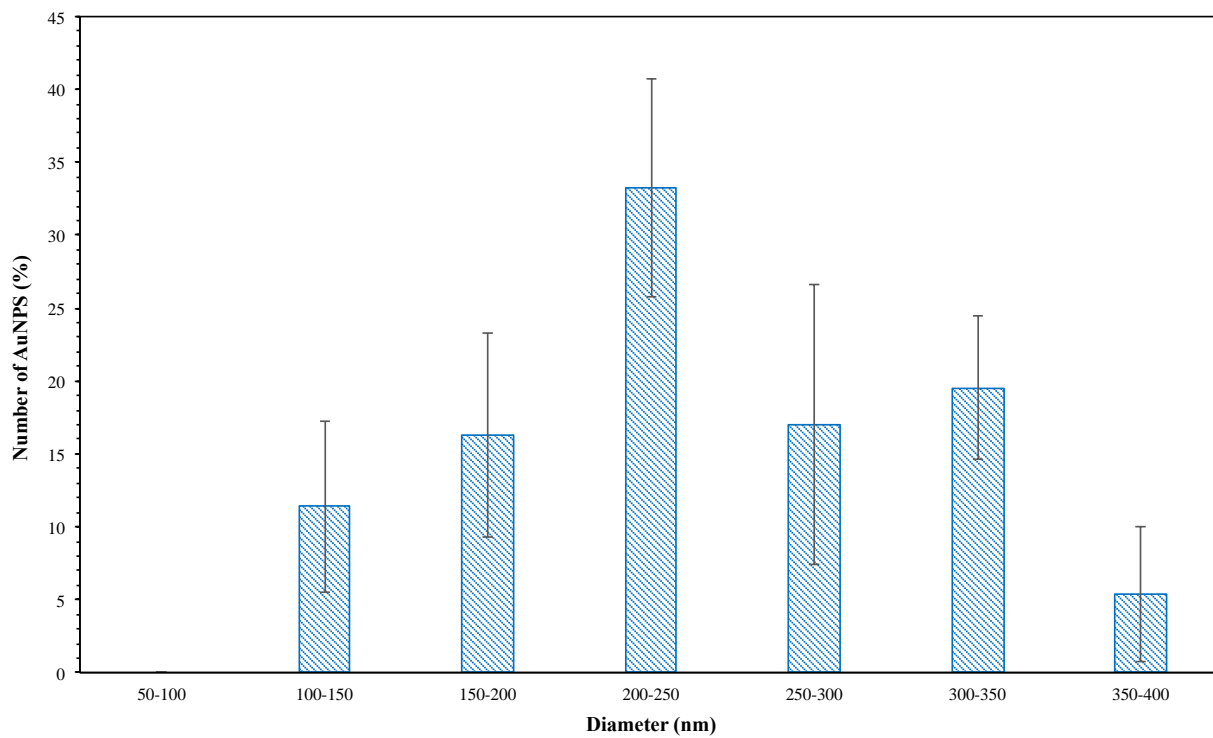
**Figure S7:** SEM image reporting the enlargement of AuNPs aggregates obtained with 10 minutes of deposition.



**Figure S8:** Size distribution of AuNPs after 2 minutes of microdroplets deposition.



**Figure S9:** Size distribution of AuNPs after 4 minutes of microdroplets deposition.



**Figure S10:** Size distribution of AuNPs after 10 minutes of microdroplets deposition.