



Supplementary Materials

High-Density and Monodisperse Electrochemical Gold Nanoparticle Synthesis Utilizing the Properties of Boron-Doped Diamond Electrodes

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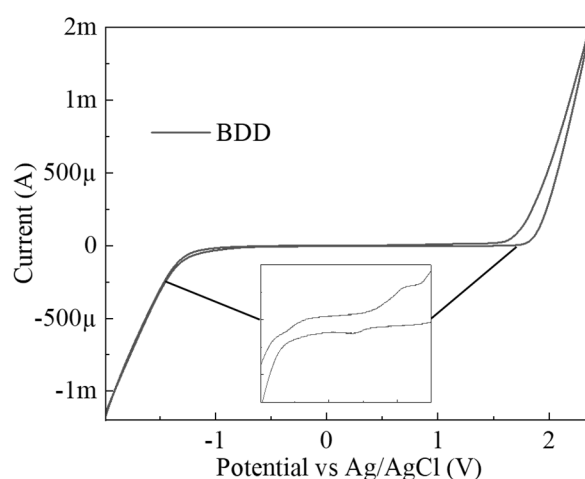


Figure S1. Potential window in AcONa of the BDD measured using cyclic voltammetry. The voltage was swept from -2.0 to 2.4 V with a scan rate 0.2 V/sec.

Table S1. Particle size and number of AuNPs electrodeposited at different durations. The particle analysis was performed using ImageJ.

	Average Particle Size (nm)	Particle Number/ μm^2
30 s	42 ± 6	141 ± 3
60 s	56 ± 5	132 ± 7
90 s	120 ± 10	82 ± 7
120 s	90 ± 10	50 ± 10

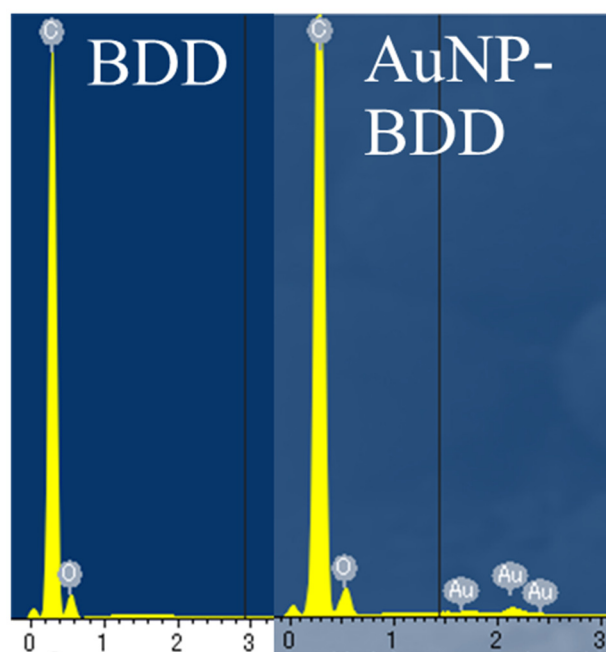


Figure S2. EDX analysis to confirm Au deposition on BDD.

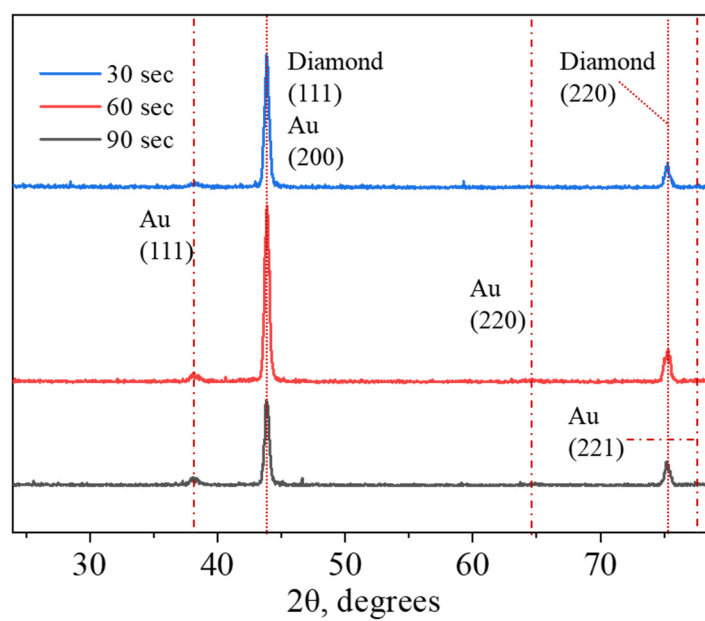


Figure S3. XRD patterns of AuNP-modified BDD samples at different synthesis durations.

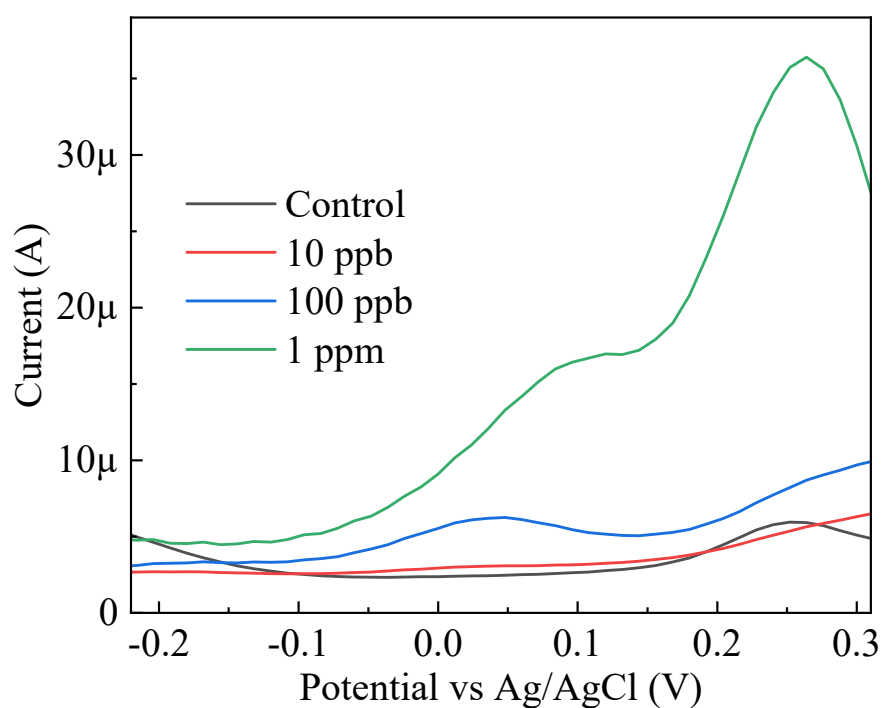


Figure S4. Electrochemical detection of As(III) using BDD in AcONa under the same SWASV condition as with AuNP-BDD.

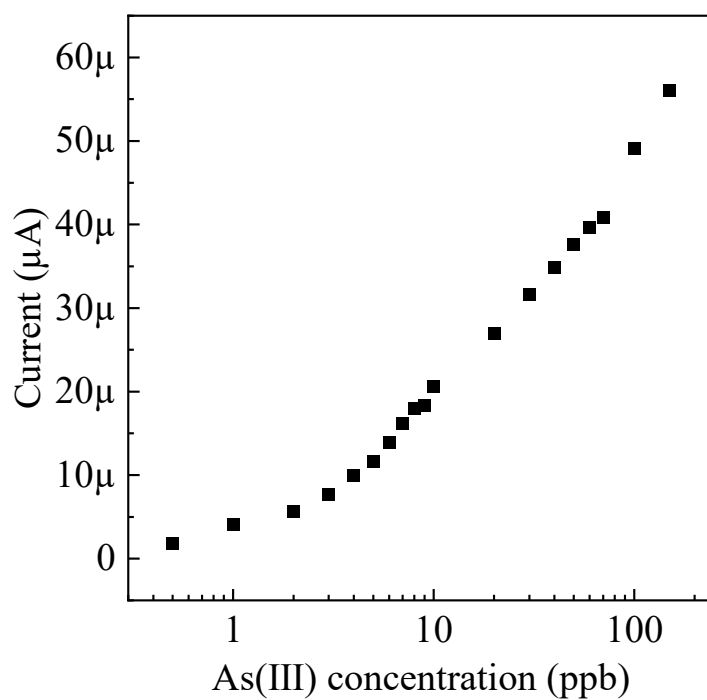


Figure S5. Current peak value plot for the electrochemical detection of As(III) in AcONa.

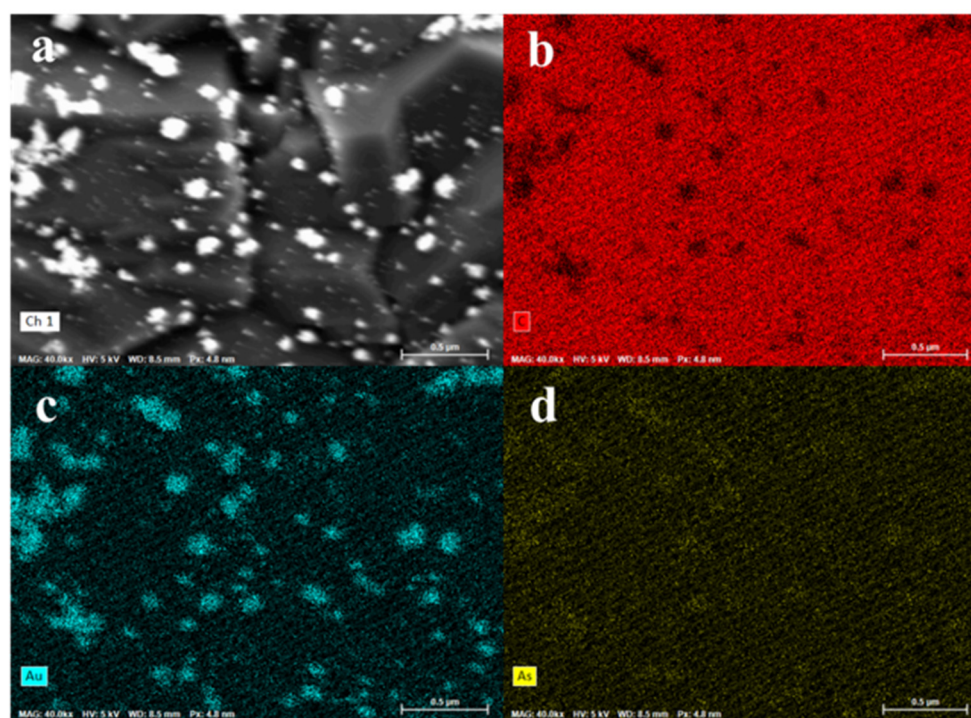


Figure S6. EDX maps of AuNP-BDD after As(III) detection. (a) Image obtained in normal SEM mode. (b–d) Mapping result of C, Au, and As.