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ARTICLE

Supporting Information

Periodic Nanostructured Au Arrays on Si Electrode for High-Performance Electrochemical Detection of Hydrogen Peroxide without Enzyme

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The influence of the annealing temperature on the Au nanostructured arrays:



Figure S1: SEM images of Au nanosphere arrays obtained by colloidal monolayer with periodic length of 350 nm and with deposition time of 3 min with current of 20 mA, after annealing for 2 h under different annealing temperature: (a) 300° C, (b) 600° C, (c) 900° C, (d) 1000° C.

The influence of the annealing time on the Au nanostructured arrays:



Figure S2: SEM images of Au nanosphere arrays obtained by colloidal monolayer with periodic length of 350 nm and with deposition time of 3 min with current of 20 mA, after annealing at 900°C for different annealing time: (a) 0.5h, (b) 1h, (c) 2h, (d) 3h.

Sensor	Linear range	Detection limit	Stability	Reference
MoS2-Pt74Ag26	$1 \ \mu M$ to $1 \ mM$	0.4 μΜ		[15]
Au@Ag nanoparticles/GCE	5 μM to 10 mM	1.3 μM	90% (3 days)	[16]
Au nanorods		8.65 µM	90% (68 days)	[17]
Gold nanoparticles embedded in silica sol–gel	$2.5~\mu M$ to $45 \mu M$	3.15 nM		[18]
Gold nanowire	$0.8\ \mu M$ to $4\ mM$	1.2 μM	95% (1 days)	[19]
Pd NPs on GO nanosheets	$0.1~\mu M$ to $1.0~mM$	0.05 μΜ	92% (7 days)	[29]
Cu NPs on MWCNTs	$0.5\ \mu M$ to $10\ mM$	0.3 μΜ		[30]
Gold nanoarrays	$0.2 \ \mu M$ to $5 \ m M$	0.1 μΜ	92% (35 days)	Our work

Table S1 Comparison of the performances of the various types of H_2O_2 biosensors.