Supporting information for

Dynamic templating: A Large Area Processing Route for the Assembly of Periodic Arrays of Sub-Micrometer and Nanoscale Structures

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Substrates used for dynamic templating

Fig. S1. A compilation of SEM images showing periodic gold arrays formed on a wide variety of substrates using dynamic templating (scale bar = $10 \mu m$).



Fig. S2. (a) SEM image of a periodic array of gold structures assembled on graphene (scale bar = 10 μ m) supported on a silicon wafer with a 285 nm SiO₂ layer. (b) The Raman spectrum recorded for an area occupied by a gold structure. The spectrum is characteristic of single layer graphene with defects. The D-, G- and 2D-bands are at 1361 cm⁻¹, 1606 cm⁻¹ and 2707 cm⁻¹, respectively.



Fig. S3. Simulations of the extinction efficiency using the discrete dipole approximation (DDA) for a 110 nm diameter gold nanoparticle placed on a sapphire disc (diameter = 300 nm, thickness = 20 nm) for three different contact angles: (a) $\theta = 180^{\circ}$, (b) $\theta = 130^{\circ}$ and (c) $\theta = 90^{\circ}$. The extinction spectra corresponding to $\theta = 130^{\circ}$ most closely resembles the experimentally determined value.



Fig. S4. (a) SEM image of an array of gold nanostructures on (0001)-oriented sapphire obtained using dynamic templating and (b) a histogram of the four nearest-neighbor distances associated with 440 arrayed nanostructures. The width of the distribution provides a measure of the registration errors associated with arrays fabricated using dynamic templating. The expected array periodicity is $2.6 \mu m$.

Element	Thickness (nm)	Pede Sb (nm)	estal Bi (nm)	Heating Profile
Au	1.5	300	0	$RT \xrightarrow{9\min} 600C (30\min soak) \xrightarrow{20\min} 1100C \rightarrow RT$
Ag	0.12	300	0	$RT \xrightarrow{9\min} 600C(30\min soak) \xrightarrow{5\min} 750C \rightarrow RT$
Cu	1.0	250	50	$RT \xrightarrow{9\min} 600C (30\min soak) \xrightarrow{10\min} 900C \rightarrow RT$
Pt	1.2	250	50	$RT \xrightarrow{30 \text{ min}} 1100C \rightarrow RT$
Ni	0.8	0	300	$RT \xrightarrow{30 \text{ min}} 1100C \rightarrow RT$
Co	0.6	250	50	$RT \xrightarrow{30 \text{ min}} 1100C \rightarrow RT$
Ge	8	300	0	$RT \xrightarrow{20 \min} 900C \rightarrow RT$
Au/Ag	0.3/0.3	300	0	$RT \xrightarrow{9\min} 600C(30\min soak) \xrightarrow{10\min} 750C \rightarrow RT$

Table S1. Processing conditions for the arrayed structures appearing in Fig. 6 of the journal article. For the final cool-down to room temperature the cooling times were not recorded as the furnace element was simply turned off. All samples were formed on (0001)-oriented sapphire.