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Nanostructured Thin Films Obtained by Electrodeposition over a Colloidal Crystal Template: Applications in Electrochemical Devices

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This supplementary material presents experiments performed in order to achieve the best Triton X-100 concentration to stabilize the polystyrene particles over a glassy carbon electrode. The same reasoning was developed to determine the best surfactant concentrations over ITO, gold and platinum substrates. Figure 1S shows the colloidal template assembled over a glassy carbon electrode using 1.0×10^{-6} mol L^{-1} Triton X-100 to stabilize the polystyrene particles over the substrate, leading to a homogeneous distribution.

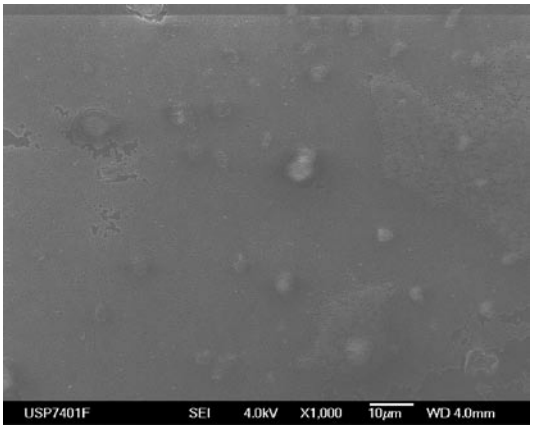

Figure 1S. 0.5 % monodisperse polystyrene spheres +1.0×10^{-6} mol L^{-1} Triton X-100 assembled over a glassy carbon electrode.

Figure 2S and Figure 3S present the polystyrene spheres deposited over the glassy carbon substrates using 1.0×10^{-5} mol L^{-1} Triton X-100 and 1.0×10^{-7} mol L^{-1} Triton X-100, respectively. In the first case, the surfactant amount is quite high and it is possible to observe latex agglomerates distributed in different parts over the substrate. On the other hand, 0 1.0×10^{-7} mol L^{-1} Triton X-100 is not concentrated enough to stabilize the polystyrene spheres, resulting in an inhomogeneous colloidal template assembly with many free glassy carbon areas.

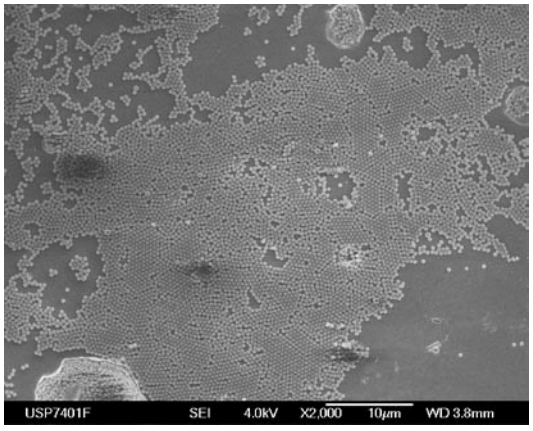

Figure 2S. 0.5 % monodisperse polystyrene spheres + 1.0×10^{-5} mol L^{-1} Triton X-100 assembled over a glassy carbon electrode.

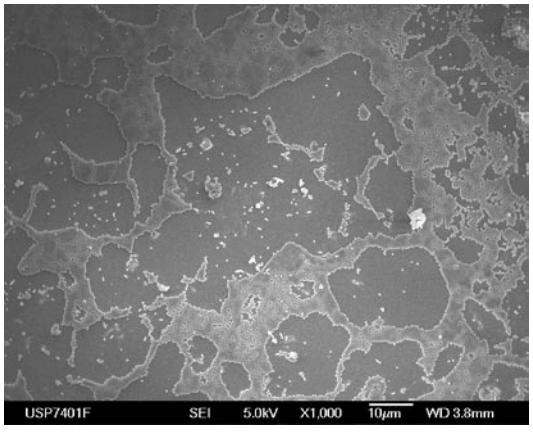

Figure 3S. 0.5 % monodisperse polystyrene spheres + 1.0×10^{-7} mol L^{-1} Triton X-100 assembled over a glassy carbon electrode.

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