Designed Electrodeposition of Nanoparticles INSIDE Conducting Polymers
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Figure S1: SEM images of PEDOT:PEG-Pt at (a) 100 cycles and (b) 5 cycles at 5 kV and the scale bar is 1 µm. Platinum nanoparticles were electrodeposited by applying a reduction current of –600 µA for a number of cycles in an aqueous solution containing 5 mM H\textsubscript{2}PtCl\textsubscript{6} and 1 M H\textsubscript{2}SO\textsubscript{4}. The potential stabilized at 0.21 V vs. SCE

Figure S2: EDX images confirming Ni nanoparticles presenting through PEDOT:PEG-Ni film. The Ni nanoparticles were prepared by pulsed electrodeposition from a Watt bath with an applied current of -900 µA. The potential was -0.81 V vs. SCE. Scale bar is 500 nm.
Figure S3: Typical voltage plot during the chronopotentiometric electro-deposition of Cu inside CP film. The amount of charge was 0.04 C/cm².

Figure S4: Cross section SEM image of PEDOT:PEG-Cu prepared by applying a constant current of -200 µA. The sample was heated at 60 °C for 30 min and then allowed to cool down before starting the deposition.