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Polymer Single Crystal Directed Nanoparticle Assembly SHAN MEI, HAO QI, TIAN ZHOU, CHRISTOPHER LI, None — Gold nanoparticles (AuNPs) have raised great interests due to their special properties such as SPR phenomenon. In recent decade, huge amount of work has been done to the self or directed assembly of AuNPs into varies of ordered structures so that more unique properties could be discovered and can be magnified to larger scale. In this work we report a directed assembly method of AuNPs into well defined, free standing frame structure using poly(ethylene oxide) (PEO) lamellar single crystal as the template. Here, PEO/PEO-b-P4VP single crystals were employed as a template to guide the assembly of AuNP as well as a medium to crosslink the AuNPs. By controlling the single crystal size and PEO-b-P4VP pattern, we are able to tune the size and width of the AuNP frame. We consider this approach to be an efficient way to assemble AuNPs and this methodology could be applied to other metal or semiconductor NPs.

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None

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