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Metal Nanoparticle Arrays Templated by Block Copolymer Sphere Monolayers HIROYUKI ISHII, JSR corporation, Materials Research Laboratory UCSB, EDWARD KRAMER, Materials Research Laboratory UCSB, Materials Department UCSB — Making well-ordered arrays of metal nanoparticles has attracted a lot of interest due to its potential application in nanoelectronics and nanooptics. We fabricated well-ordered gold nanoparticle arrays using an ordered block copolymer monolayer film as a template. After the thermal self-assembly of a polystyrene-*b*-poly(2-vinylpyridine) (PS-P2VP) monolayer containing P2VP spheres, the sample was soaked in a solution containing HF to charge the P2VP and metal salts which can coordinate with P2VP. Subsequently the sample was treated with an oxygen plasma to reduce metal salts and remove polymer. The array structure was characterized by scanning electron microscope (SEM) and X-ray photoelectron spectroscopy (XPS). While the interparticle distance can be controlled by changing molecular weight of block copolymer, access of the solution to the P2VP spheres, which have a PS matrix layer on top, is not always successful. Strategies for improving such access will be discussed.

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