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macroporous polymer networks have been a subject of extensive researches due to their diverse applications such as biological membranes, catalysts, photonic bandgap materials, and scaffolds for nanostructures. The macroporous polymers with regularly ordered structures can be fabricated using templates after several stepwise processes: synthesis of templates, infilling and polymerization of monomers in void spaces of the templates, and subsequent dissolution of the template framework.

Non-template route based on self-assembly of block copolymers is also very effective for the preparation of the macroporous polymers, particularly in the forms of thin films. Minor polymeric components in the copolymer can be selectively removed by several techniques and consequently pores are formed in the copolymers. Here we report a novel route to synthesizing ordered macroporous polymers, which is based on electron irradiation of colloidal polymethyl methacrylate (PMMA) crystals. Only irradiating an electron beam to the colloidal crystals produces the ordered macroporous polymers and no post-treatment is required for the formation of the porous polymers. This simple and novel route offers design and fabrication of arbitrarily shaped two-dimensional (2D) and three-dimensional (3D) macroporous polymer structures of tunable pore sizes.

**Ea-P074** Electrochemical synthesis and characteristics of poly (p-phenylenvinylene) nanotube and nanowire

**Ea-P075** Study for the self-assembled metallic cobalt micro-rings

**Ea-P076** Preparation and Characterization of CdSe Quantum Dots Embedded in Poly-(vinyl alcohol) Matrix

**Ea-P077** Fabrication of silicon nanostructures by DPN-assisted chemical etching

We have investigated self-assembled micro-ring formation of cobalt nanoparticles using Scanning Photoelectron Microscopy (SPM), x-ray photoelectron spectroscopy (XPS), and near-edge x-ray absorption fine structure (NEXAFS) at the Pohang Light Source. The micro-rings were prepared by annealing the air-oxidized cobalt nanoparticles on a silicon wafer in vacuum. The space resolved Co 3p XPS spectra, density of state (DOS) at the Fermi level, and Co L-edge NEXAFS spectra indicate that there exists metallic state at the micro-rings. The role of carbon and sulfur that were used as stabilizing nanoparticles for the formation of micro-rings will be discussed.

Highly luminescent poly vinyl alcohol capped CdSe nanoparticles were prepared by a one-step chemical route. Poly vinyl alcohol as matrixes have several advantages, on the one hand is a template to make nanosized crystallites in solution, the other hand are able to achieve surface passivation, prevent particles from agglomeration and maintain size distribution effectively, for encapsulated semiconductor nanoparticles. The products were characterized by different techniques such as high resolution electron microscopy (HRTEM), scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS), X-ray diffraction (XRD), UV-visible spectrophotometry and photoluminescence (PL).

Silicon nanostructures were fabricated using DPN-assisted chemical etching.