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Measurement of Diffraction Properties of Colloidal Crystals[1]
NICHOLAS SELAN, MICHAEL BLADES, MIDHUN JOY, JAMES GILCHRIST, SLAVA ROTKIN, Lehigh University — Close-packed, self-assembled arrays of micrometer polystyrene or silica spheres are high quality artificial crystals that generate well-defined diffraction patterns in the visible range. Such crystals are explored as possible substrates for deposition of nanomaterials such as graphene. Quasi-monochromatic visible light diffraction microscopy is used to characterize effective refractive index and crystal structure, specifically grain size, orientation, and lattice parameters. These parameters can be used to monitor deformations of the colloidal crystal lattice during transfer of nanomaterials.

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