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Dynamics of responsive polypeptide composite particle suspended in a liquid crystal matrix and jamming[1] CORNELIA ROSU, Department of Chemistry and Macromolecular Studies Group, Louisiana State University, LU ZOU, CHANJOONG KIM, Institute of Liquid Crystals, Kent State University, Kent, OH, 44242, PAUL S. RUSSO, Department of Chemistry and Macromolecular Studies Group, Louisiana State University — The emerging field of polypeptide composite particles, PCPs, has received an increased interest in the last years because of many opportunities open to a variety of applications. A PCP made of a silica core and a homopolypeptide shell resembles unique properties that cannot be achieved by the core or soft polymer shell alone. PCPs are responsive to external stimuli (e.g. light, electric and magnetic field) by incorporating fluorescent dyes and magnetic nuggets inside the silica core. Beside the responsive core, the polypeptide shell undergoes conformational transitions as a function of pH, temperature and solvent. Magnetic PCPs coated with a sparse polypeptide corona can be used as platforms to study colloidal self-assembly under jamming conditions. They are also reliable models to investigate the dynamics of complex fluids consisting of PCPs suspended in a liquid crystal matrix.

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