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Effects of Solvents on Confinement of Conjugated Polymer into Soft Nanoparticle[1] NARESH OSTI, THUSITHA ETAMPAWALA, UMESH SHRESTHA, SIDATH WIJESINGHE, DVORA PERAHIA, Clemson University —
Conjugated polymers when collapsed into nano dimension form soft nanoparticles (poly-dots) without losing their electro-optical characteristics. The brightness together with the bio-compatibility of these nanoparticles has shown significant potential in intracellular fluorescence imaging as well as building blocks for light harvesting devices. The conformations of the polymers in the poly-dots are a key to their stability and optical properties. The current work investigates the structure and stability of poly-dots of *di-alkyl para polyphenyleneethynylene* (PPE) conjugated polymers in ethylene glycol and in water. Small angle neutron scattering (SANS) studies have shown that PPEs form spherical fuzzy poly-dots both in water and in ethylene glycol. In water, the poly-dots remain fairly stable up to a temperature of 80^0C. In ethylene glycol however the poly-dots swell with increasing temperature. The structure of the confined structure obtained from SANS is compared with fluorescence spectroscopy results where the intensity of the fluorescence is inversely proportional to the degree of confinement.

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