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Structural Properties of Water Nano-pockets Encapsulated in Polymerized Reverse Micelles JACOB URQUIDI, JOSE L. BANUELOS, New Mexico State University, NANCY LEVINGER, Colorado State University — Reverse micelles, that is, small surfactant coated droplets of polar solvent, can form in a range of systems of varying surfactant and polar solvent. SANS has been used to characterize the shape, size and polydispersity of these reverse micelle systems which are macroscopically clear but nanoscopically heterogeneous. Particular sensor applications have been developed using a reverse micellar starting material to create a sample that is macroscopically a robust solid with encapsulated nanoscopic pockets of fluid. This poster will discuss the nanopockets of the fluid phase (water in this case) within the matrix as investigated by small angle X-ray scattering (SAXS) and neutron scattering techniques. The SAXS technique was used to investigate the polydispersity, shape, and distribution of the nanopockets of fluid. Neutron scattering was used to lend insight into the nature of the water encapsulated within these micelles by looking at the position, width, and height of the First Sharp Diffraction Peak (FSDP) to probe the physical perturbations that the water is subject to.

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