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Supramolecular Hydrogels from Self-Assembly of di-Fmoc-L-lysine SEYED MEYSAM HASHEMNEJAD, KINSEY NAAS, SANTANU KUNDU, Mississippi State University — Mechanical properties and nanostructure of a supramolecular hydrogel formed by self-assembly of di-fluorenylmethoxycarbonyl-lysine (di-Fmoc-L-lysine) are reported here. Hydrogels were prepared by solvent switch technique in which water was added to a solution of di-Fmoc-L-lysine in dimethyl sulfoxide (DMSO). Mechanical properties of the gels were investigated using shear and cavitation rheology. The gels display strain-softening behavior at moderate strain values. Morphological investigations of the samples were conducted using FTIR and CD spectroscopy, electron microscopy, and atomic force microscopy (AFM). Self-assembled fibers with lateral dimensions ranging from 10 to 50 nm were captured in microscopy studies. FTIR results indicate β -sheet-like conformation of the peptides in the hydrogel.

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