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Fresh Insights on the mechanical response of methylcellulose hydrogels JOSEPH LOTT, JOHN MCALLISER, FRANK BATES, TIMOTHY LODGE, University of Minnesota — The thermoreversible gelation of aqueous solutions of methylcellulose (MC) at elevated temperatures is well established. However, it has only recently been determined conclusively that the structure of such gels is fibrillar in nature and the rheological properties observed are a result these structures. Cryo-transmission electron microscopy (cryo-TEM) and small-angle neutron scattering (SANS) provide detailed insight into the fibrillar network's size scales, growth with temperature, and composition. In light of this new understanding, we explore the possibility of reevaluating the rheological behavior of MC gels under the paradigm of the mechanics of filament networks.

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