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Harnessing Interfacially-Active Nanorods to Regenerate Severed Polymer Gels XIN YONG, OLGA KUKSENOK, University of Pittsburgh, KRZYSZTOF MATYJASZEWSKI, Carnegie Mellon University, ANNA BALAZS, University of Pittsburgh — With newly developed computational approaches, we design a nanocomposite that enables self-regeneration of the gel matrix when a significant portion of the material is severed. The cut instigates the dynamic cascade of cooperative events leading to the re-growth. Specifically, functionalized nanorods localize at the new interface and initiate Atom Transfer Radical Polymerization with monomers and cross-linkers in the outer solution. The reaction propagates to form a new cross-linked gel, which can be tuned to resemble the uncut material.

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