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A highly tough and stiff supramolecular polymer double network hydrogel

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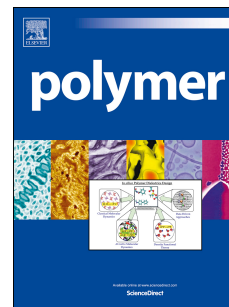
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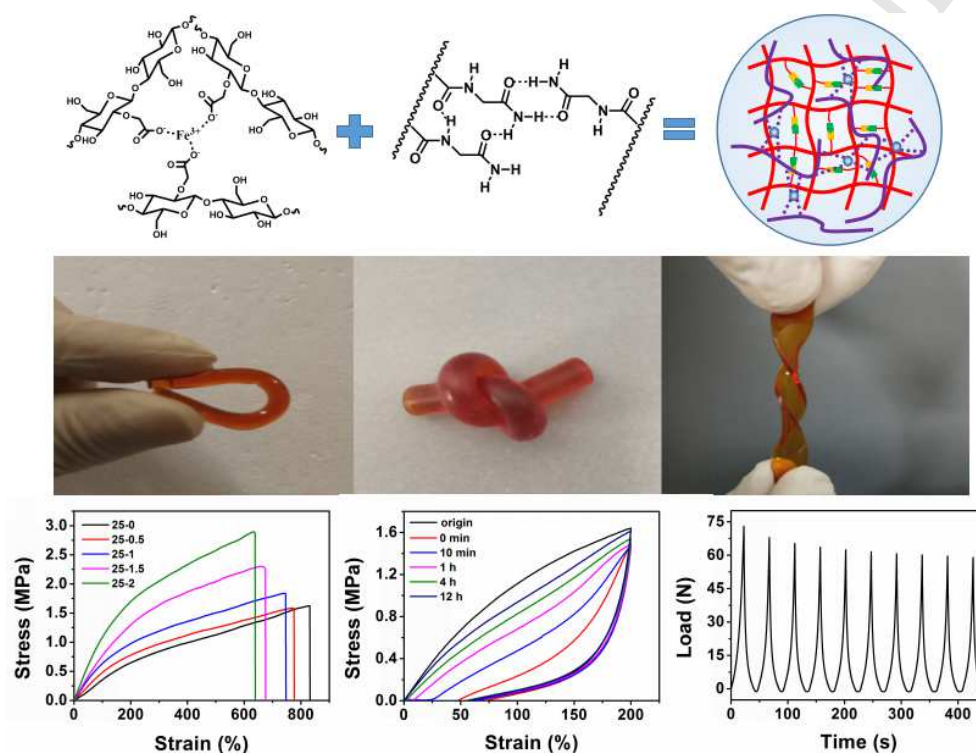
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A supramolecular polymer double network hydrogel is fabricated based on hydrogen bonding crosslinked poly(N-acryloyl glycinamide) (PNAGA) and  $\text{Fe}^{3+}$  crosslinked sodium carboxymethyl cellulose (CMC). The PNAGA/CMC-Fe hydrogel demonstrates megapascal order of tensile and compressive strengths, and high toughness ( $12.3 \text{ MJ m}^{-3}$ ) and tear energy ( $3700 \text{ J m}^{-2}$ ). This cytocompatible supramolecular DN hydrogel may be exploited to substitute load-bearing degenerated soft tissue.



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