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Crack proparagation in attractive colloidal systems LAURA ROSSI, TRIET DANG, University of Amsterdam, MAXIME LEFRANC, PAUL LE FLOCH, ELISABETH BOUCHAUD, ESPCI ParisTech, PETER SCHALL, University of Amsterdam — Despite its importance, the fracture of materials, especially the regime of slow, plastic fracture, remains poorly understood. This is especially true in amorphous materials, where local inhomogeneities and structural disorder are crucial to determine the mode of failure, yet they cannot be modeled with classical homogenization methods. We use new attractive colloidal systems to study fracture at time and length scales much longer than in molecular systems. In this specific project, we focus on gels made of fluorescent pNipam microgel particles aggregated via critical Casimir interactions, to analyze, at the microscopic level, nonlinear and dissipative processes in the material ahead of the propagating crack tip.

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