

Capillary instabilities in a pH responsive soft solid

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Hyaluronic acid (HA) is one of the main components of the extracellular matrix and plays an important role in many biological and pathophysiological processes. A unique feature of HA is its ability to tune its viscoelastic properties in response to pH changes: at the critical pH of 2.5, the solution switches from a viscous state to a strong elastic gel “putty state”. Here we study the destabilisation of HA filaments in an elongational flow. We take advantage of the pH-sensitive dependence of the solution to elucidate the destabilisation mechanism of different liquid states.