Abstract Submitted
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Drop dynamics on a stretched viscoelastic filament: An experimental study[1] JORGE PEIXINHO, MARIE-CHARLOTTE RENOULT, OLIVIER CRUMEYROLLE, INNOCENT MUTABAZI, Normandie Univ., UNIHAVRE, CNRS, LOMC, Le Havre, France — Capillary pressure can destabilize a thin liquid filament during breakup into a succession of drops. Besides, the addition of a linear, high molecular weight, flexible and soluble polymer is enough to modify the morphology of this instability. In the time period preceding the breakup, the development of beads-on-a-string structures where drops are connected by thin threads is monitored. The drops dynamics involve drop formation, drop migration and drop coalescence. Experiments using a high-speed camera on stretched bridges of viscoelastic polymeric solutions were conducted for a range of viscosities and polymer concentrations. The rheological properties of the solutions are also quantified through conventional shear rheology and normal stress difference. The overall goal of this experimental investigation is to gain more insight into the formation and time evolution of the drops.

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