

Abstract Submitted  
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**Branching of an electrospinning fiber** RAHUL SAHAY, CHIANG JUAY TEO, YONG TIAN CHEW, National University of Singapore, SIGURDUR THORODDSEN, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia — The phenomenon of branching during the electrospinning of polymeric liquid has been studied using high-speed video imaging. Linear stability analysis of the electrified jet has been performed including non-Newtonian effects. The branching is only observed using very fine needles of diameters of approximately 100 microns. The onset of the branching is associated with the flattening of the jet, which occurs at stronger electric fields than used for regular fiber spinning. The branch emerges out of the jet where it has the highest azimuthal curvature. We have characterized the relationship between inter-branch distances and the operating parameters, such as the applied electric field and the physical properties of the liquid, such as the molecular weight of polymer and the nature of the solvent.

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