Abstract Submitted
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Branching in electrospinning of nanofibers A. L. YARIN, University of Illinois, Chicago, W. KATAPHINAN, D. H. RENEKER, reneker@uakron.edu, Z. ZHONG, The Maurice Morton Institute of Polymer Science, The University of Akron — . A sequence of secondary jet branches sometimes emanates from the electrically charged primary fluid jet during electrospinning experiments. This process was observed during the electrospinning of solutions of polycaprolactone dissolved in acetone [1]. Branching occurred both in the straight segment of the jet and after the onset of the bending instability. Jets with larger diameters, associated with higher voltages, tend to have more branches. Stereographic, stopped motion images of the path of the jet showed that the branches grow in all azimuthal directions around the jet with a smaller component of their growth along the direction of the applied electric field. An electrohydrodynamical model of the branching process showed that the surface of a conducting fluid jet can acquire complicated static equilibrium undulations which become unstable and are capable of transforming into branches. 1. Yarin, A. L.; Kataphinan, W.; Reneker, D. H. *J. App. Phys.,* 98, 2005, 064501.

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