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Observation of Birefringence of an Electrospinning Jet in Flight KAIYI LIU, DARRELL RENEKER, The University of Akron — Solutions of polystyrene in N,N-dimethylformamide, polyacrylonitrile in N,N-dimethylformamide, and polyethylene oxide in water were electrospun. The charged liquid jets in flight were illuminated with polarized light converged on the jets by a Fresnel lens with a black background at the center, and were observed using a high speed camera, coaxial with the Fresnel lens, behind an analyzer which was crossed with a polarizer in front of the light source. The first several turns of coiled jet after the onset of electrical bending instability showed birefringence for all solutions, while no obvious birefringence was observed in the straight segments of the jets. This indicated that molecular chains in the coiled jet were aligned under elongation to a higher extent than those in the thicker straight jet.

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