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Collection of an electrospinning jet TAO HAN, DARRELL RENEKER — Electrospinning [1, 2] of polymer nanofibers involves an electrically driven bending instability of the elongating jet. If the jet is collected on a stationary surface immediately before or after the bending instability occurs, the jet buckles as it stops. Bending and buckling are distinct phenomena. The determination of the behavior of the jet path in the vicinity of the onset of the first bending instability is important for the orderly collection of the nanofiber. Precise adjustment of the fluid flow, the electrical current, and the shape of the region from which the jet issued, produced a very stable jet which was observed with a high frame rate, short exposure time camera. The fluid jet and the resulting nanofibers were collected on a solid, electrically conducting substrate which was moved laterally, and simultaneously, away from the tip. This collected material preserved a record of the straight segment and the bending and buckling instabilities with a minimum of overlapping. The occurrence of a second bending instability was sometimes observed in the dry fiber. 1. Doshi, J.; Reneker, D.H., Journal of Electrostatics; 35, 151, 1995 2. Reneker, D.H.; Yarin, A.L.Fong, H.; Koombhongse, S., Journal of Applied Physics, 87, 4531, 2000

Tao Han

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