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**Electrical Bending and Mechanical Buckling Instabilities in Electrospinning Jets** TAO HAN, DARRELL H. RENEKER, The University of Akron — The electrospinning jet was a continuous fluid flow ejected from the surface of a fluid when the applied electrical force overcomes the surface tension. The jet moved straight away from the tip and then became unstable and bent into coils. This phenomenon is the electrical bending instability [1]. When the distance between the tip and collector was reduced to less than the maximal straight segment length, the electrical bending instability did not occur. The periodic buckling of a fluid jet incident onto a surface is a striking fluid mechanical instability [2]. When axial compressive stress along the jet reached a sufficient value, it produced the fluid mechanics analogue to the buckling of a slender solid column. In the electrospinning, the buckling instability occurred just above the collector where the jet was compressed as it encountered the collector. The buckling frequencies of these jets are in the range of $10^4$ to $10^5$ Hz. The buckling lengths of these jets are in the range of 10 to 100$\mu$m.

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