

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

The path and motion of an electrospinning jet observed with videography and stereography KAIYI LIU, The University of Akron, CAMDEN ERTLEY, DARRELL RENEKER, The University of Akron — An electrospinning jet illuminated with both a steady intense light and a short flash was stereoscopically recorded through a pair of prisms in a video, producing images of both traces of moving glints reflected from the surface of a jet and the instantaneous positions of the path of the jet. The relationship between the visual observation and the jet path described in the Reneker-Yarin model^{1,2} was explained by analyzing the stereographic images. Computer modeling was used to elucidate the relationship between the onset of the bending instability and the bifurcation of a glint trace. The velocities and positions, in 3-dimensional space, of segments of a jet were calculated from the stereographic images. The distributions of velocities and positions of segments along the vertical direction were analyzed. A novel and facile method was used to observe the handedness of the coiled path of an electrospinning jet. 1. D.H. Reneker, A.L. Yarin, *Polymer*, Vol. 49, (2008) pp 2387-2425. 2. D.H. Reneker, A.L. Yarin, E. Zussman, H. Xu, *Advances in Applied Mechanics*, Vol. 41 (2006) pp 43-195.

Kaiyi Liu
The University of Akron

Date submitted: 23 Nov 2008

Electronic form version 1.4