

## The Research of 'Rope Coiling' Effect in Near-Field Electrospinning

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**Abstract :** The 'rope coiling' effect is a normal instability phenomenon widespread exists in viscous fluid, elastic rods and polymeric fibers owing to compressive stress when they fall into a moving belt. Near-field electro-spinning is the modified electro-spinning technique has the ability to direct write micro fibers. In this research, we study the "rope coiling" effect in near-field electro-spinning. By changing the distance between nozzle and collector or the speed ratio between the charge jet speed and the platform moving speed, we obtain a pile of different models coils including the meandering, alternating and coiling patterns. Therefore, this instability can be used to direct write micro structured fibers with a one-step process.

**Keywords :** rope coiling effects, near-field electrospinning, direct write, micro structure

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