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Electrospinning frozen in time[1] MATIJA CRNE, Georgia Institute of Technology, JUNG OK PARK, Georgia institute of Technology, MOHAN SRINIVASARAO, Georgia Institute of Technology — Electrospinning is known to produce microfibers with small diameter and/or high surface area. Often times, the high surface area of these fibers is associated with their surface structures, consisting of nanometer-sized holes, droplets, or microcups, whose formation depends on the spinning condition and the type of the solutions used. A mixture of isotactic and syndiotactic PMMA in dimethyl formamide was used in our study to produce helical microfibers by electrospinning at elevated temperatures. Rapid cooling during electrospinning allows for fast physical gelation to take place and trap helical microstructures arising from instabilities due to electrostatic, capillary and viscous forces. The formation of these helices was considered in terms of stability theory for electrically forced jets.

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