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Polymorphism Behaviors of Electrospun Poly(vinylidene fluoride) Nanofibers ZHENXIN ZHONG, DARRELL RENEKER, The University of Akron — Poly(vinylidene fluoride) (PVDF) and its copolymers have drawn great attention in recent years due to their attractive electrical properties such as ferro-, piezo- and pyro-electricity. Depending on its processing, PVDF can exhibit five different polymorphs. Among them, the beta phase has the highest piezo-, pyro- and ferroelectric activities. Electrospinning was used to produce thin polymer fibers. The polymorphic behavior of electrospun PVDF fibers was observed. Long cylindrical PVDF specimens with cross-sections in the range of 10 nm to 1 micron was obtained by varying the electrospinning conditions. Almost pure beta phase was obtained in electrospun PVDF nanofibers. The morphology and internal structure of single PVDF electrospun nanofibers were studied by transmission electron microscopy.

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