Understanding the Origin of Electrostriction Property in Electroactive Polymers

Lei Zhu, Professon tc2 -1 >>BDC t /2p E/P/2p ostrictive polymers wi
sensing, actuation, and energy-harvesting. To understand the origi
observed in electroactive polymers, we chose to study a variety of
including poly(vinylidene-*co*-fluoride) [P(VDF-TrFE)] random c
TrFE-*co*-chlorotrifluoroethylene) [P(VDF-TrFE-CTFE)] random te
nylons (e.g., nylon-12 and nylon-6), poly(ether-amide) multiblock c
thermoplastic polyurethanes (TPUs). It is observed that uniaxiallyl
based polymers exhibit positive longitudinal strain upon electroactu
stretched polyamide-based polymers exhibit negative longitudi
observations, the large electrostriction in electroactive polyme
nanoactuation of the crystalline phases. In P(VDF-TrFE)-based po
realized by the twisted-to-all trans conformation transformation. In po
nanoactuation is realized by the trans-to-twisted conformatio
understanding will help us design new electroactive polymers fo
practical applications.

Biographic Sketch

Professor Lei Zhu received his B.S. degree in Mat
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