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**Effects of Local Dielectric Property on the Chain Conformation Distribution of Poly (vinylidene fluoride-hexafluoropropylene) Copolymers.** GUOLIN WU, SURIYAKALA RAMALINGAM, SHAW LING HSU, Polymer Science & Engineering, Univ of Massachusetts — Poly(vinylidene fluoride) (PVdF) is a well known polymer possessing various polymorphic structures. Local dielectric property is known to affect the relative amount of polymorphic phases. The copolymer of PVdF and hexafluoropropylene units is especially fascinating. In this copolymer, changes in structure need to consider both localized dielectric property and steric effects of the comonomer units. The copolymer structure possesses smaller remnant polarization and fewer polar crystalline states in comparison to the homopolymer. Solution NMR studies reveal that the relative population of various rotational isomeric states has been changed in comparison to the homopolymer. This change in single chain structure obviously propagates into the condensed state yielding polar structure, that is,  $\beta$  and  $\gamma$  phases. NMR, Raman spectroscopy, wide-angle X-ray diffraction, and calorimetric methods were utilized in these studies. The steric effects of the comonomer units driving away from the  $\beta$  phase have also been established.

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