

Abstract: In this report, several classes of electroactive polymer developed recently are reviewed. As representative polymeric piezoelectric films with space charge, polypropylene cellular and porous polytetrafluoroethylene films have a piezoelectric d_{33} coefficient of 200 - 600 pC/N. In the second class of electroactive polymers, i. e. the defect-structure modified poly(vinylidene fluoroethylene-trifluoroethylene) polymers, an electrostrictive strain of more than 5% and elastic energy density above 1 J/cm³ can be induced in a field of 150 MV/m. And the polymer is an all-organic composite, with a very high dielectric constant (900) and high strain induced in a weak applied electric field (2% strain in 13 MV/m) and the composite has an elastic modulus near 1 GPa