

Abstract: The study on how space charges affect aging and breakdown of polymers becomes one of the most important domains. Most of the models are based on the injected charges increasing the local field to induce the breakdown of polymers and breaking the large molecule chains. These models ignore the effects of space charge on the microstructure of dielectric materials. In this review, with the calculation of the electromagnetic energy and the electromechanical energy around a trapped charge and with some new experimental results, it is proved that aging and breakdown in polymers are caused during the detrapping of the trapped charges. Aging and breakdown of the polymers are related to the release of the electromechanical energy around trapped charges