

# Abstract

**Iman Gamal Morsi**

## **PYROELECTRIC PROPERTIES OF NANOCOMPOSITE OF POLYVINYLIDENE FLUORIDE AND**

In recent years, polymer-ceramic nanocomposite materials have been given great attention due to the possibility of their use in piezoelectric and pyroelectric transducers. Nanocomposite of polyvinylidene fluoride (PVDF) and barium titanate (BaTiO<sub>3</sub>) is prepared using cast technique. When infrared spectra were used, it is concluded that pure PVDF and their composite with BaTiO<sub>3</sub> exist in the unpoled state ( $\beta$ - phase). It is found that incorporation of BaTiO<sub>3</sub> into PVDF has destroyed the spherulite structure and has dispersed in the PVDF matrix with nanosize particles. It is observed that nanocomposite of 30 wt. % of PVDF has the highest pyroelectric coefficient of 1.00 nC/cm<sup>2</sup>/oC.