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Pyroelectric and Electrical Transport Properties of Silver Nanoparticles Doped LiTaO₃:P(VDF-TrFE) Films JOHN CORDA, ASHOK BATRA, PADMAJA GUGGILLA, MOHAN AGGARWAL, TATIANA KUKHTAREVA, MATTHEW EDWARDS, Department of Physics, Alabama A&M University — Ferroelectric ceramic and polymer composites are a well-established alternative to conventional ferroelectrics for sensors and actuator applications because they combine the mechanical compliance and flexibility of polymer with the high piezoelectric and pyroelectric activities of electro-ceramic. Lithium tantalite (LiTaO₃) ceramic particles and silver nanoparticles have been incorporated into a polyvinylidene fluoride-trifluoroethylene [P(VDF-TrFE) 70/30 mol%] copolymer matrix to form composite films via solution casting technique. Both of these materials have excellent ferroelectric and pyroelectric properties. Electrical properties such as the dielectric constant, dielectric loss, conductivity and pyroelectric coefficient have been measured as a function of temperature. Their results obtained shall be presented including composite films' usefulness in infrared detection devices.

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