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On PVDF-Carbon Nanotubes Composites CHAMATH DANNAGODA, MAXIM SUMETS, KAREN MARTIROSYAN, HEINRICH FOLTZ, MIRCEA CHIPARA, University of Texas Rio Grande Valley — Carbon Nanostructures (Vapor Grown Carbon Nanofibers and Single Walled Carbon Nanotubes; CN) have been dispersed within polyvinylidene fluoride (PVDF) by melt mixing, using a three steps program (mixing at 190 C for 60 rpm and 30 minutes, at 210 C for 80 rpm and 15 minutes, and at 180 C and 60 rpm for 30 minutes.) The mixing was set at a relatively high temperature as the melting temperature of PVDF is about 177 ^{o}C. The as obtained composites were hot pressed into small discs with a diameter of 1 cm and a thickness of about 1 mm. Raman investigations on these samples have been done before the deposition of the electrical contacts. The temperature and frequency dependence of the electrical properties of these nanocomposites was measured. The details regarding the electrical conduction mechanisms are reported. The effect of the CN concentration and aspect ratio on the electrical properties is analyzed within the percolation theory. Additional DSC data was used to analyze glass, melting, and crystallization temperatures and their effect on charge transport.

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