

عنوان مقاله:

The effects of Graphite and CNTs doping on TiO₂ properties in anatase phase

محل انتشار:

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خلاصه مقاله:

In this research, we synthesized titanium dioxide (TiO₂) nanoparticles by sol-gel method, and doped with different percentages (0.2%wt and 0.5%wt) of graphite and carbon nanotubes (CNTs). The X-ray diffraction analysis of the samples showed the formation of anatase phase of pure and doped TiO₂ samples. We checked the morphology and grains size of the samples by using FESEM analysis we measured the grain size, which was reduced from 65 nm to 42 nm by doping. The electrical properties of the samples have investigated by LCR meter and measured the capacitance, energy dissipation and conductivity of the samples. The results of the electrical measurements showed that the conductivity of the samples increased from $88.51(\Omega m)^{-1}(*10^{-12})$ to $67.52(\Omega m)^{-1}(*10^{-12})$ with doping. We used UV-Vis and FT-IR analysis to investigate optical properties of the samples. We found that CNTs doped samples have more conductivity and smaller grain size than graphite doped samples

کلمات کلیدی:

titanium dioxide, Carbon nanotubes, Conductivity, Capacitance, Band gap energy

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