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Dp-III-133 Dielectric spectroscopy of pure $KMgF_3$ and sm^{3+}-doped $KMgF_3$ single crystals above room temperatures.

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Pure $KMgF_3$ and sm^{3+}-doped $KMgF_3$ single crystals were grown in the argon gas using Czochralski method. Dielectric and electrical conductivity of the sm^{3+}-doped $KMgF_3$ and pure $KMgF_3$ single crystals in the temperature range of 30-500^oC and the frequency range of 1 Hz-3 MHz have been reported. The experimental dielectric and ac electrical conductivity have been analyzed in the complex impedance ($Z^*(w)$) and electric modulus ($M^*(w)$) formalisms. The electric modulus and impedance show well-defined relaxation peaks. The conductivity relaxation times are determined from the peaks of the modulus and impedance associated with activation energies of 1.1eV in the sm^{3+}-doped $KMgF_3$ and 0.8eV in the pure $KMgF_3$ single crystal. The relaxation, occurs as results of hopping of charge carriers between localized states and the correlated barrier hopping, describes the dominant mechanism. The temperature dependence of various electric parameters was also determined and discussed.

Dp-III-134* The Effect of Electron Beam Irradiation for Osteoblast Cell Growth on Titanium Dioxide Nanotube

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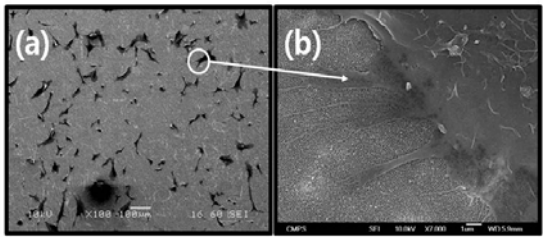

The aim of this study is to investigate the influence of electron beam irradiation for osteoblast cell growth on titanium dioxide(TiO_2) nanotube as a function of incubation times. The vertically well-aligned TiO_2 nanotubes were fabricated on Ti metal sheet using anodization process into HF solution. For cell adhesion studies, MC3T3-E1 mouse osteoblast(type CRL-2593, sub-clone4, ATCC, Rockvill, MD)were used. The electron beam irradiation was performed by a ELV-8 electron accelerator(EB Tech.), working at 1.0MeV, 4mA and irradiation doses were controlled by the irradiated for different times. The results of the number of adhered cells as a function of incubation time revealed that there was a significant difference between the before and after of electron beam irradiation. The number of MC3T3-E1 cell adhesion and growth increase with the raise of incubation times as much as ~155%. Fig.1 presents SEM micrographs of the adhered osteoblast cell on TiO_2 nanotube for after electron beam irradiation(a) and high magnification image(b).