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Irradiation Effects on Structure and Spectroscopic Properties of Sugar Doped Sol–Gel Silica.

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The silica xerogels doped sucrose was prepared via sol-gel process and exposed at room temperature to different doses of high energy (^{60}Co) gamma irradiation. Changes in the physical properties of the xerogels before and after irradiation were characterized by using UV–visible and FTIR spectra of pristine and irradiated xerogels with varying of gamma doses rays, showing a variation in the gap energy. It was found that the gamma irradiation influences the optical properties and modifies the network structure. Then, results indicate that the gap energy of the investigated silica xerogels decreases with increasing the gamma irradiation doses. Thereby the irradiated samples reveal behaviour changes, from an insulator ($E_g \sim 5.8 \text{ eV}$) towards a semiconductor with ($E_g \sim 3.5 \text{ eV}$).

Country/Organization invited to participate

Tunisia

Primary author: Ms MARZOUKI, Kaouther (National Center for Nuclear Sciences and Technologies, Tunisia)

Co-author: Mr BEN OUADA, Hafedh (Faculté des Sciences de Monastir, Tunisia)

Presenter: Ms MARZOUKI, Kaouther (National Center for Nuclear Sciences and Technologies, Tunisia)

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