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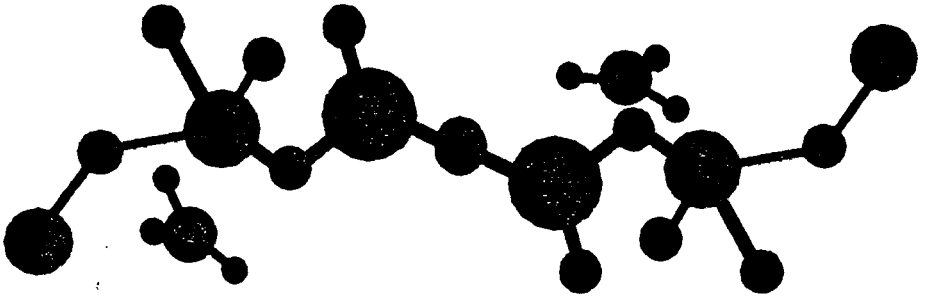

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VACUUM ULTRAVIOLET ABSORPTION SPECTRUM OF PHOTOREFRACTIVE Sn-DOPED SILICA FIBER PREFORMS

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Vacuum ultraviolet absorption data have been obtained up to 8.3 eV on Sn-doped silica preforms of optical fibres. Measurements have been carried out before and after exposure to 248 nm radiation from KrF excimer laser. The absorption spectrum is composed by three main structures peaked at about 4.9, 5.8 and 7 eV, with the absorption edge at about 8.2 eV. The main effect of irradiation is the decrease of the spectral components at 4.9 and 7 eV, whereas a small increase of absorption intensity is only observed just below the band at 4.9 eV. The results suggest that the photorefractivity of this material cannot be directly related to photoconversion of optically active defects. In fact, the contribution to the refractive-index change resulting from the absorption changes observed in the whole region of point-defect bands is negative, contrary to the positive change previously reported. The role of structural modifications - possibly accompanying the defect photoconversion process - is briefly discussed.