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Crystal Structure and Relaxor-Type Transition In Praseodymium Doped SBT JORGE MATA*, ALEJANDRO DURAN*, RAUL ESCAMILLA, IIM-UNAM Mexico, EDUARDO MARTINEZ*, JESUS HEIRAS*, JESUS SIQUEIROS*, *Centro de Ciencias de la Materia Condensada-UNAM, MEXICO — The effects of Pr substitution and ferroelectric response for the $Sr_{1-x}Pr_xBi_2Ta_2O_9$ ceramic system were studied. Rietveld refined X-ray diffraction indicates that Pr ion progressively replaces Sr in the $A2_1am$ space group structure. The solubility of Pr in the solid solution is around 15 %. The replacement induces change in the crystal structure and as consequence dielectric properties are affected. The displacement of TiO_6 octahedra with respect to Bi_2O_2 along the polarization axis decreases as Pr is increased. A notable decrease in the transition temperature (Tm) is observed. With Pr substitution the Tm shifts gradually from $\sim$305 ^{o}C to $\sim$120 ^{o}C. Apparently, the rotation at the ab-plane (β) as well the octahedral distortion observed are strongly related to the coupling between Tm and x. However, the tilt angle (α) associated to the c-axis don't play an important role as it remains essentially constant. Relaxor type transition is observed as Pr increases due to polar microregions above the nominal ferroelectric transition. Local disorder induced by Pr ion is confirmed by the continuous increase in the diffuseness coefficient according to Isupov's model. Thanks to DGAPA-UNAM and CONACYT for funds through Proj. No. 40604-F, 47714-F, IN116703, IN100903 and to P. Casillas, J. Peralta, M. Sainz.

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