

## Structural and Optical Studies of $(\text{Sm}_x\text{Bi}_{0.5-x}\text{Na}_{0.5}\text{TiO}_3)_y\text{-(BiFeO}_3)_{1-y}$ Solid Solution

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**Abstract.**  $(\text{Sm}_x\text{Bi}_{0.5-x}\text{Na}_{0.5}\text{TiO}_3)_y\text{-(BiFeO}_3)_{1-y}$  multiferroic ceramics ( $y=0.0$  and  $x=0.03$  for  $y=0.05$ ) were synthesized by solid state reaction method. Preliminary X-ray structural analysis shows that SBNT-BFO polycrystalline compounds have rhombohedral crystal structure. The effect of samarium doping on structure and microstructure and optical properties is systematically investigated.

**Keywords:** X-ray diffraction; SEM; FTIR

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