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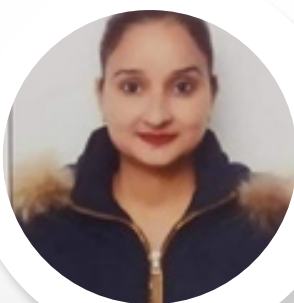
### **Study of physical, structural and optical properties of ZnO containing lithium borosilicate glasses**

The glasses with composition  $x\text{ZnO}-(20-x)\text{Li}_2\text{O}-50\text{B}_2\text{O}_3-30\text{SiO}_2$  (where  $x = 0, 0.5, 1.0, 1.5$  and  $2.0$  mol %) are prepared via melt and quench technique. The study on structural and optical properties of the samples is investigated using X-ray diffraction (XRD), FTIR and UV-visible spectroscopy to check the effect of adding ZnO in lithium borosilicate glasses. Various physical parameters viz. density, molar volume, ionic concentration, polaron radius and inter-nuclear distance have been calculated. The density of the samples increases with increasing ZnO content due to higher molar mass of ZnO as compared to  $\text{Li}_2\text{O}$ . The molar volume increases with increase in ZnO content. The ionic concentration increases with the increasing content of ZnO while the polaron radius and inter-nuclear distance decreases, which results in more compact boron network in borosilicate glasses. The XRD patterns confirm the amorphous nature of the glasses. FTIR spectroscopy in the spectral range of  $400\text{-}4000\text{ cm}^{-1}$  is performed to understand the presence of various structural groups in the prepared glasses.

#### **Biography**

Amardeep kaur is a research scholar at Punjabi University (Patiala) Punjab, India. Her research topic is to study the thermoluminescence (TL) of transition metal doped borosilicate glasses. It is useful in radiation dosimetry applications. The TL study of one series was presented at the MCS conference held in 2019 Montreal, Canada and published in Journal of Luminescence, Effect of MnO on structural, optical and thermoluminescence properties of lithium borosilicate glasses, volume 219, March 2020, 116872. Now she have prepared ZnO doped glasses and the physical, structural and optical properties are sent to present in the conference.

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