

## Raman microscopy of ferroelectric Sb-S-I glasses doped with Fe

N. Ćelić<sup>1</sup>, I. Gut<sup>1</sup>, K. Čajko<sup>1</sup>, O. Bosak<sup>2</sup>, A. Bartosova<sup>2</sup>, & S. Lukić–Petrović<sup>1</sup>

<sup>1</sup> Faculty of Sciences, University of Novi Sad, Trg D. Obradovića 4,  
21000 Novi Sad, Serbia,

<sup>2</sup> Faculty of Materials Science and Technology in Trnava, Slovak University of  
Technology in Bratislava, Bottova 25, 917 24 Trnava, Slovakia,

Corresponding author: nevena.celic@df.uns.ac.rs; Ondrej.bosak@stuba.sk

Chalcogenide glass-ceramics are very promising materials for different applications in the modern society. They are well known for their optical and electronic properties opening wide range of possible applications. Doping of three-component ferroelectric Sb-S-I glasses with metal

appears to be very interesting due to the possibility of tuning electrical, magnetic and mechanical properties. Thus, it is very important to investigate and understand their structure. This paper presents the study of structural properties of ferroelectric Sb-S-I glasses doped with iron using Raman microscopy. This technique enables us to analyze the structure of different spots of the samples. Possible differences in Raman spectra in these spots indicate variations in the composition and presence of inhomogeneities in the samples.

The samples with  $x=0.01, 0.8, 1, 2, 3$  and  $5$  at% of Fe are investigated. The samples were measured using DXR Raman microscope with excitation line  $532$  nm and the maximal laser power of  $0.1$  mW. Measured Raman spectra of all samples show the domination of the peak positioned at approximately  $290$   $\text{cm}^{-1}$  [1], which is the consequence of  $\text{SbS}_{3/2}$  vibrations. The slight red shift of this peak for the samples with higher concentration of iron indicates higher level of crystallinity of these samples. Negligible variations in Raman spectra at different spots of the samples suggest quite homogeneous structure of the samples.

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### References

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