

## S1-P.10

# Micromechanical Properties and Plastic Deformation Features of the $\text{Pb}_{1-x}\text{Yb}_x\text{Te}$ Ternary Semiconductors

D.Z. Grabco<sup>1</sup>, V.Z. Nicorici<sup>2</sup>, Z.A. Barbos<sup>1</sup>, D. Topal<sup>1,2</sup>, and O.A. Shikimaka<sup>1</sup>

<sup>1</sup>*Institute of Applied Physics, Chisinau, Republic of Moldova*

<sup>2</sup>*State University of Moldova, Chisinau, Republic of Moldova*

In this paper, the effect of ytterbium (Yb) impurity on the microstructure, the specificity of plastic deformation and the strength properties of PbTe crystals has been studied. The researches have been conducted on a PMT-3 microhardness tester using loads in the range (50-1000) mN. For all applied loads, the  $\text{Pb}_{1-x}\text{Yb}_x\text{Te}$  ( $x=0.0025$ ;  $0.0075$  and  $0.01$  at %) single crystals showed pronounced plasticity and very low hardness values ( $H = 0.35\text{--}0.39$  GPa), which is characteristic of compounds containing lead. It was suggested that the deformation of  $\text{Pb}_{1-x}\text{Yb}_x\text{Te}$  crystals under microindentation occurs by a dislocation mechanism with some contribution of the structure compaction in the bulk beneath the indentations.