

# Abstrakt k bakalářské práci - Anglický jazyk Synthesis and Characterization of Topological crystalline insulators in the SnTe material class

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In this work we prepared series of single crystal samples  $\text{Pb}_x\text{Sn}_{1-x}\text{Te}$  and  $\text{Pb}_x\text{Sn}_{1-x}\text{Se}$ . These materials are quite popular last few years, after they were predicted and then characterized by [4] as topological crystalline insulators (TCI). TCI is a quantum state of crystals, in which symmetry causes existence of the metal states on the surface. Samples had been prepared from molten flux and by using Bridgman method. Homogeneity and purity of single crystals had been determined. Compounds  $\text{Pb}_x\text{Sn}_{1-x}\text{Te}$  and  $\text{Pb}_x\text{Sn}_{1-x}\text{Se}$  crystalized in cubical structure and were defined as Fm-3m space group, existence of  $\text{Pb}_x\text{Sn}_{1-x}\text{Se}$  in Pnma space group were confirmed.