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**Nanomaterials of the topological crystalline insulators,  $\text{Pb}_{1-x}\text{Sn}_x\text{Te}$  and  $\text{Pb}_{1-x}\text{Sn}_x\text{Se}$ .** MOHAMMED SAGHIR, ANNA SANCHEZ, STEVE HINDMARSH, STEVE YORK, GEETHA BALAKRISHNAN, University of Warwick — The study of topological insulators and their derivatives, in both 1D and 2D forms, has been the subject of great interest which has grown vastly in recent years. Topological insulators (TIs) and Topological Crystalline insulators (TCIs) exhibit exotic surface properties which are thought to be difficult to detect due to the surface signal being overwhelmed by that arising from the bulk of the material. As a result, by increasing the surface area to volume ratio, the signal from the surface states could be easier to investigate. We present results of the growth and characterisation of nanomaterials for the TCIs,  $\text{Pb}_{1-x}\text{Sn}_x\text{Te}$  and  $\text{Pb}_{1-x}\text{Sn}_x\text{Se}$ . Bulk crystals were used as starting materials for the growth, from which various morphologies of these TCIs were obtained. Nanowires of  $\text{Pb}_{1-x}\text{Sn}_x\text{Te}$  have been produced with a Sn composition of  $\sim x = 0.25$ , at which a transition from trivial to non-trivial insulator has been reported for bulk materials. The results obtained on the growth of nanomaterials of  $\text{Pb}_{1-x}\text{Sn}_x\text{Se}$  are also described, all of which were characterised using various x-ray diffraction and electron microscopy techniques.

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