

Crystal growth and superconductivity of Fe-base materials

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A number of Fe-base superconducting materials have been discovered recently. The Fe-11 phase $\text{FeTe}_{1-x}\text{Se}_x$ and Fe-112 phase KFe_2Se_2 superconducting materials are very interesting new materials. We have grown a number of the $\text{FeTe}_{1-x}\text{Se}_x$ and KFe_2Se_2 single crystals by using a Bridgman growth technique and zone method. The effects of the growth condition and the compositions of a raw materials on the single crystal growth of $\text{FeTe}_{1-x}\text{Se}_x$ and KFe_2Se_2 has been studied by using a Bridgman growth technique. Various physical properties of these single crystals will be presented.