Abstract

Rise in the global population leads to energy consumption, also there are there are many other factors which leads towards energy consumption they are rise in economic and industries. Industries include power plants, nuclear power plant, thermal power plant, vehicles, waste incinerator and factories where gas and aluminum are emitting at very large scale. These sources are emitting large amount of energy as a heat. There are not enough resources to cover this huge loss but only thermoelectric materials have drawn strong attention because it is their ability to convert this loss to useful means. Thermoelectric derived from the word "Therm" means heat and "electric" refers to electricity. So thermoelectric materials mean to convert heat into electricity. Many thermoelectric materials have been discovered including Bi_2Te_3 and PbTe but due to their harmful nature and a little bit expensive make them unsuitable for thermoelectric application. Tin selenide materials are the new thermoelectric materials which are used for thermoelectric applications. In this research work structural, electronic and thermoelectric properties of metal doped Tin selenide has been investigated with the help of DFT. We use WEIN2k code to calculate the different properties of our compound. We doped vanadium at the concentration of (x=0.5,0.25,0.125). Results reveals that with increasing the concentration of vanadium doping material show good thermoelectric properties, also it's figure of merit greatly enhanced.