

## Thermoelectric Properties of Spark Plasma Sintered Te Doped $\text{Cu}_3\text{SbSe}_4$ : Promising Thermoelectric Material

**Authors :** Kriti Tyagi, Bhasker Gahtori

**Abstract :** Various groups have attempted on enhancing the thermoelectric figure-of-merit (ZT) of the  $\text{Cu}_3\text{SbSe}_4$  compound by employing doping process. Efforts are made to study the thermoelectric performance of  $\text{Cu}_3\text{SbSe}_4$  material doped with Te in different compositions (i. e.  $\text{Cu}_3\text{Sb}_{1-x}\text{Te}_x\text{Se}_4$ ,  $x = 0.005, 0.01, 0.015, 0.02$ ). The different doping concentration has been selected to identify the suitable doping to increase the thermoelectric performance. Compared to pristine  $\text{Cu}_3\text{SbSe}_4$ , an enhancement of thermoelectric figure-of-merit was achieved for 0.005 Te doped  $\text{Cu}_3\text{SbSe}_4$ . This improvement can be attributed to the reduction of thermal conductivity for 0.005 Te doped  $\text{Cu}_3\text{SbSe}_4$ .

**Keywords :** figure-of-merit, polycrystalline, thermal conductivity, thermoelectric

**Conference Title :** ICSMSDS 2018 : International Conference on Smart Materials, Structures, Devices and Systems

**Conference Location :** London, United Kingdom

**Conference Dates :** September 27-28, 2018