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**A STUDY OF SUSTAINABILITY OF TETRAHEDRITE IN
THERMOELECTRIC MATERIAL**

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ABSTRACT

A direct use of mineral based tetrahedrite by simple post extraction process to bring the appropriate stoichiometry is reported by Lu et al. In addition to this the earth abundance of constituent elements will allow the realization of the cost effectiveness of tetrahedrite thermoelectric materials. The zT is achieved to be ~ 1 by different research group across the world with consistent and mutually agreed results among most of the groups. This improvement involved mainly the simple substitution technique rather than the complex approaches such as creating nanostructure in the system. Recently the tetrahedrite material is commercialized by using it for harvesting the waste exhaust heat from automobiles. An US based company called Alphabet Energy have fabricated the thermoelectric generator using p-type tetrahedrite. The module was implanted in an exhaust system of a truck for recovery of waste heat. This is benefitted by enhancing the fuel savings by 3-6%. When it comes to biological safety, tetrahedrite is a nontoxic material and hence environmentally friendly.

Keywords: Sustainability, Tetrahedrite, Thermoelectric Material