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Effect of triple fillers on thermoelectric properties of p-type skutterudites TULASHI DAHAL, QING JIE, ZHIFENG REN, Department of Physics and TcSUH, Univ of Houston, Houston, TX 77204, USA — Experiments were carried out to investigate the effect of triple fillers on the thermoelectric properties of p type skutterudites. We have synthesized the samples by hot pressing nano powders made by ball milling annealed ingots of $\text{Ca}_x\text{Ce}_y\text{Nd}_z\text{Fe}_{3.5}\text{Co}_{0.5}\text{Sb}_{12}$. By tuning the concentration of Ca, Ce, and Nd, we have achieved a lower thermal conductivity $\sim 2 \text{ W m}^{-1} \text{ K}^{-1}$ at room temperature and $\sim 2.6 \text{ W m}^{-1} \text{ K}^{-1}$ at 530 °C), leading to a peak ZT of about 1.1 at 475 °C. The observed lower thermal conductivity can be attributed due to a broad range of phonon scattering due to multiple fillers.

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