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Thermoelectric Properties of Nanostructured n-type $Yb_xCo_4Sb_{12}$Bulk JIAN YANG, HUI WANG, YUCHENG LAN, XIAO YAN, BO YU, XIAOWEI WANG, GAOHUA ZHU, DEZHI WANG, ZHIFENG REN, Physics Department, Boston College, Chestnut Hill, MA 02467, QING HAO, GANG CHEN, Department of Mechanical Engineering, MIT, Cambridge, MA 02139, QINYU HE, South China Normal University, Guangzhou, China, MILDRED S. DRESSELHAUS, Department of Electrical Engineering and Computer Science, Department of Physics, MIT, Cambridge, MA02139 — Nanostructured single phase of Yb filled skutterudites $CoSb_3$ with a nominal composition of $Yb_xCo_4Sb_{12}$(X = 0.3, 0.35, 0.4, and 0.5) have been synthesized by ball milling and direct current induced hot press. Thermoelectric properties including electrical conductivity, Seebeck coefficient, and thermal conductivity from room temperature to 550° were measured and discussed. It was found that $Yb_{0.35}Co_4Sb_{12}$ has the optimal dimensionless figure of merit of 1.2 at 550°.

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