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Nanostructured thermoelectric skutterudite $Co_{1-x}Ni_xSb_3$ alloys QINYU HE, Boston College; South China Normal University, XIAOWEI WANG, JIAN YANG, YUCHENG LAN, XIAO YAN, BO YU, YI MA, BED POUDEL, GIRI JOSHI, DEZHI WANG, ZHIFENG REN¹, Boston College, QING HAO, GANG CHEN², MIT, BOSTON COLLEGE, REN'S LAB COLLABORATION, MIT COLLABORATION, SOUTH CHINA NORMAL UNIVERSITY COLLABORATION — Nanostructured Ni-doped skutterudites $Co_{1-x}Ni_xSb_3$ (with x ranging from 0.01 to 0.09) have been prepared by ball-milling and direct-current induced hot press. It was found that the thermal conductivity was much reduced due to strong electronsphonons scattering from Ni-doping and grain boundary phonons scattering from nano-structures in the samples. A maximum dimensionless figure-of-merit of 0.71 has been obtained in $Co_{0.91}Ni_{0.09}Sb_3$ at 525 °C.

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