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Study on thermoelectric performance by Na doping in nanostructured $\mathbf{Mg_{1-x}Na_xAg_{0.97}Sb_{0.99}}$ JING SHUAI, HEE SEOK KIM, YUCHENG LAN, SHUO CHEN, YUAN LIU, HUAIZHOU ZHAO, JIEHE SUI, ZHIFENG REN, Department of Physics and TcSUH, University of Houston, TX 77204 — $MgAg_{0.97}Sb_{0.99}$ was found to be potentially a new class of thermoelectric materials with ZT values above 1 in the temperature from 100 to 300 °C. In this report, we systematically studied the effect of Na doping in Mg, $Mg_{1-x}Na_xAg_{0.97}Sb_{0.99}$, on the thermoelectric properties and found Na was effective to increase the carrier concentration and power factor, especially below 180 °C, which led to higher ZT values, a better self-compatibility factor, and ultimately a higher output power at the optimal Na concentration of x = 0.005-0.0075.

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