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Electrical and Thermal Transport Properties of $Bi_2Sr_2Co_2O_{9-\delta}$ Single Crystals and Thin Films ZHENYU DIAO, Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA 70803, H.N. LEE, M. CHISHOLM, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, RONGYING JIN, Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA 70803 — Layered $Bi_2Sr_2Co_2O_{9-\delta}$ possesses rich physical properties, promising for thermoelectric applications. We have successfully synthesized $Bi_2Sr_2Co_2O_{9-\delta}$ in both single crystal and epitaxial thin film forms by applying various oxygen pressures. We found that their electrical and thermal transport properties are sensitive to the oxygen content, suggesting that the oxidation state of Co plays an important role in thermoelectric properties. Comparison of power factor between single crystals and thin films will be presented.

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