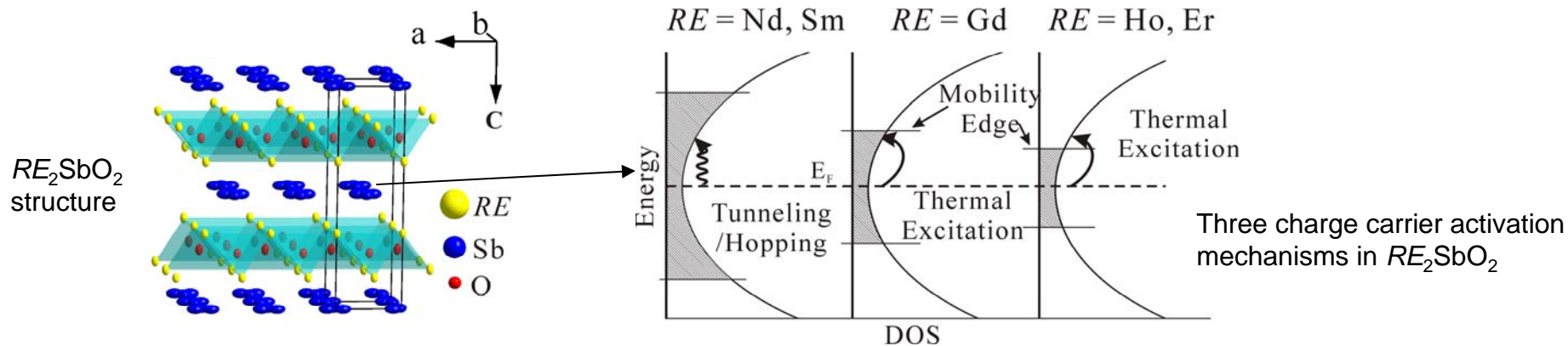
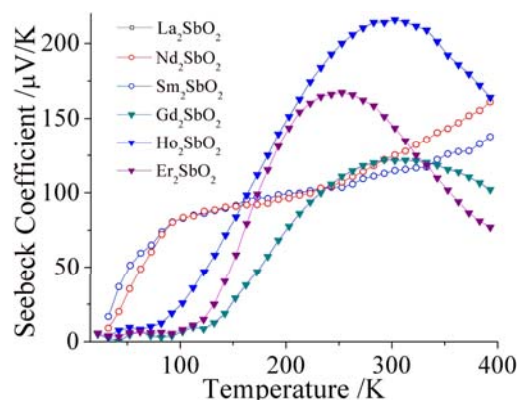
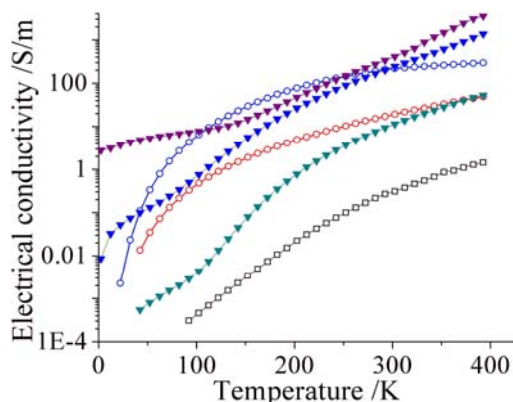


Decoupling the Electrical Conductivity and Seebeck Coefficient in the RE_2SbO_2 Compounds through Local Structural Perturbations

Compromise between electrical conductivity and Seebeck coefficient limits the efficiency of chemical doping in the thermoelectric research. An alternative strategy, involving the control of a local crystal structure, is demonstrated to improve the thermoelectric performance in the RE_2SbO_2 system. As the lattice parameters of the RE_2SbO_2 phases are gradually reduced and the chemical pressure on the Sb atoms increases, different charge carrier activation mechanisms dominate the transport properties of these compounds. As a result, the electrical conductivity and Seebeck coefficient are improved simultaneously while the number of charge carriers in the series remains constant.



Three charge carrier activation mechanisms in RE_2SbO_2



Electrical conductivity (left) and Seebeck coefficient (right) for the RE_2SbO_2 phases.