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Thermoelectric properties of CdGa₂O₄ spinel

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Thermoelectric materials can convert heat into electricity and thermoelectric devices can play an important role in the efficient use of energy. In this study, we investigate the thermoelectric properties of hard glassy spinel mineral CdGa₂O₄. The potential of a material to be a candidate as the active component of a thermoelectric device is captured in the figure of merit, ZT, which includes information on the lattice and electronic transport properties. Given the difficulties of directly measuring ZT experimentally, we computed its value within density functional theory using linearised Boltzmann transport equations in a relaxation time approximation. We find that CdGa₂O₄ is promising as a high temperature thermoelectric material.

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