Temperature dependence of the Seebeck coefficient of epitaxial β-Ga_2O_3 thin films

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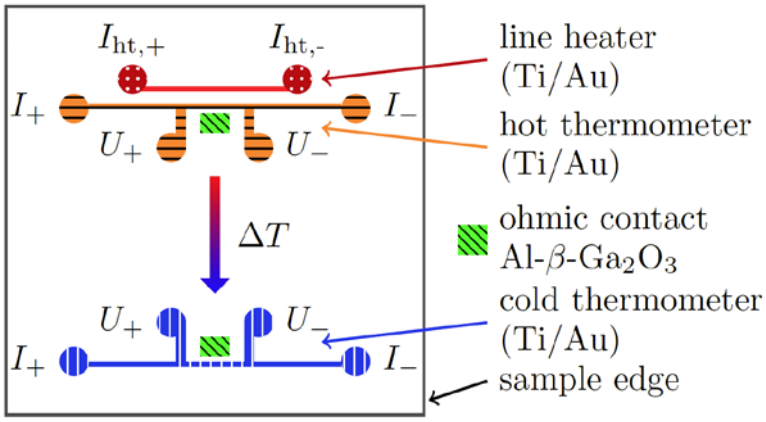
Short Abstract

The first experimental determination of the temperature dependence of the Seebeck coefficient of homoepitaxial metal organic vapour phase grown, silicon doped ß-Ga_2O_3 thin films is reported. For room temperature, we found the relative Seebeck coefficient of $S_{ß\text{-}Ga_2O_3\text{-}Al}$ = -300 +/-20 µV/K. At high bath temperatures T > 240 K, the scattering is determined by electron-phonon-interaction. Between T = 100 K and 300 K, an increase in the magnitude of the Seebeck coefficient is explained in the frame of Stratton's formula.



Above. Schematic of the thermoelectric measurement setup.