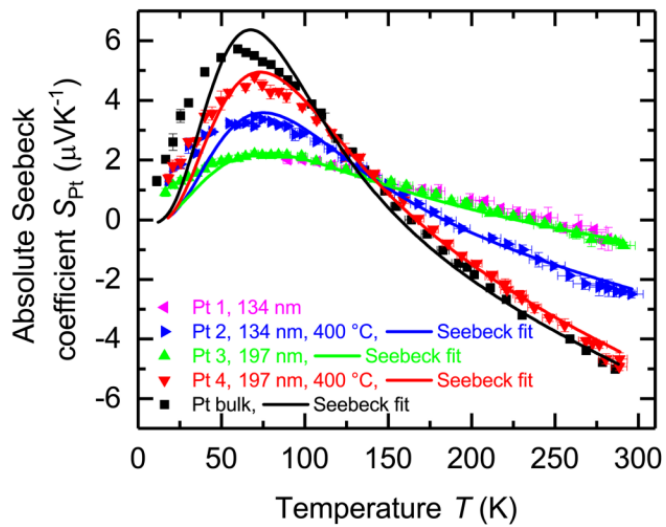


Absolute Seebeck coefficient of thin platinum films

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Short Abstract

We investigated the influence of film thickness on the electrical conductivity and the absolute Seebeck coefficient of platinum film. The electrical conductivity and the absolute Seebeck coefficient are reduced compared to the bulk due to size effects like surface and boundary scattering. Structural properties like grain size and film thickness, which limit the electron mean free path, influence the absolute Seebeck coefficient. If the mean free path of thin metallic films is in the order of the film thickness, the absolute Seebeck coefficient of bulk is no longer valid.



Above. Absolute Seebeck coefficient of platinum as a function of the bath temperature T . The corresponding solid lines represent a fit to the data.