



SUPER – Stuttgart University Program for Experiencing Research Project Information

Institute's Information

Name of Institute Institute of Thermodynamics and Thermal Process Engineering ITT
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Duration of Project/Number of Students

June/July x
June/July/August x (both)
Number of Students 1

Name of Project Determining transport properties with entropy scaling

Beneficial Skills & Knowledge

Basics in Thermodynamics
Prior knowledge in programming (Python) helpful but not required

Description of Work

For apparatus and process design knowledge of the transport properties (for example viscosity or thermal conductivity) of a working fluid is important. It is very difficult to predict these properties, because they display a very complex behaviour over for example temperature and pressure. In thermodynamics we have several methods to predict transport properties. The method you will use is called entropy scaling. When plotting the reduced transport coefficient over the residual entropy of the substance a univariate behaviour is observed, that can be fitted with ansatz-functions. In the residual entropy space transport coefficients can therefore be predicted fairly simple and with good accuracy.



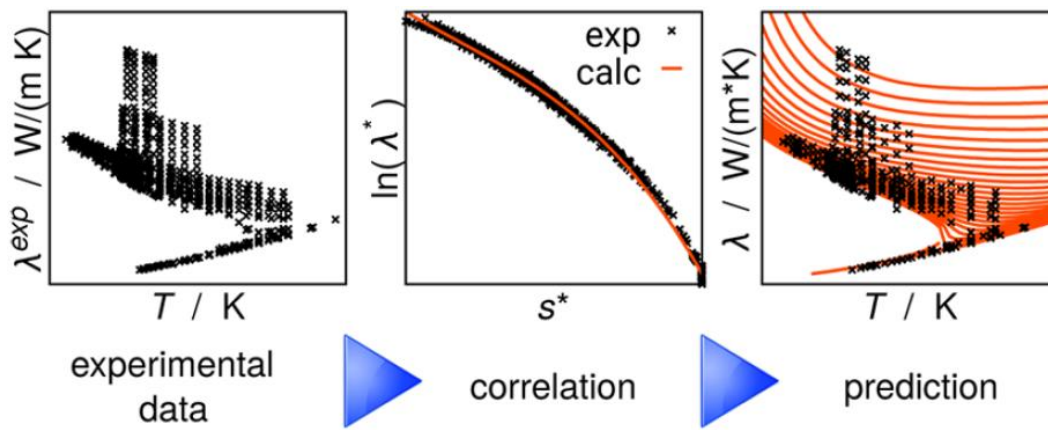


Figure 1 Thermal conductivities via Entropy Scaling (Hopp et al. 2017)

We will determine your research question together, depending on the state of the research when you arrive. Topics can range from data analysis over improving the accuracy of entropy scaling for pure substances to developing new rules for the entropy scaling of mixtures.

