

The background image shows a large, modern building with a prominent, tall, conical structure made of metal lattice. In the foreground, there is a wide, green lawn with a paved path and a set of wide, light-colored stone steps. Many people are sitting on the steps and walking on the path. The sky is clear and blue.

Triogen Turbine Optimization

Properties SU2 and Coolprop

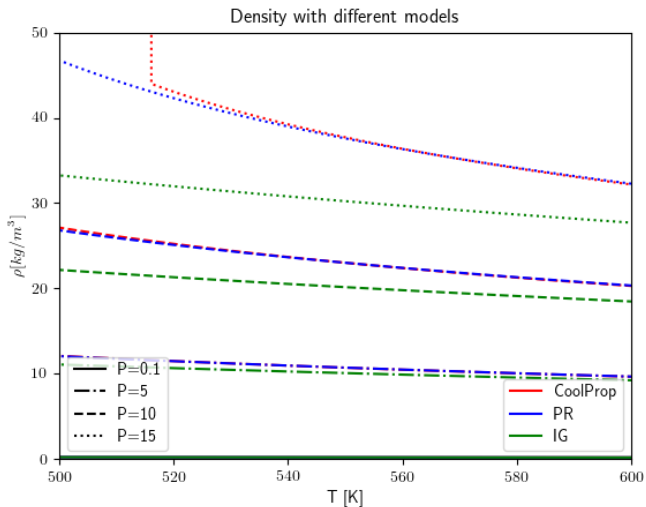
Delft University of Technology

Stephan Smit
July 6, 2018

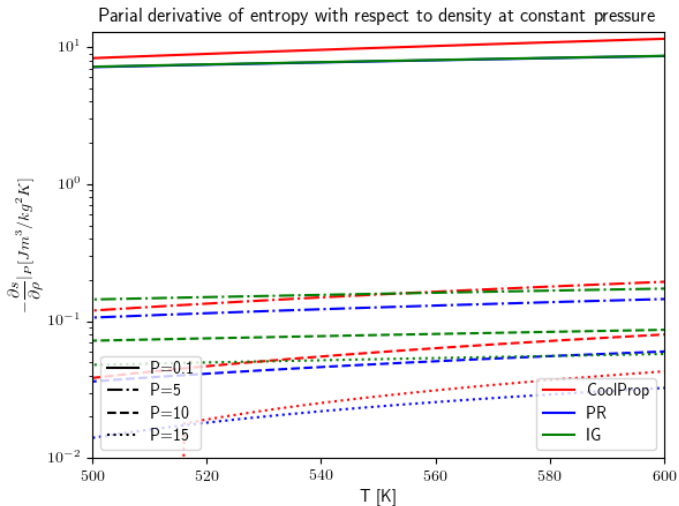
Variable properties in SU2

- Incorporated the viscosity model and thermal conductivity model of CoolProp in SU2
 - Reference Correlation of the Viscosity of Toluene from the Triple Point to 675 K and up to 500 MPa (Avgari and Assael, 2015)
 - Reference Correlation of the Thermal Conductivity of Toluene from the Triple Point to 1000 K and up to 1000 MPa (Assael et al., 2012)
- Peng-Robinson Equation of state used for the thermodynamic properties
- In thermal conductivity model critical correction term not included
- Next figures will show the difference between de CoolProp EOS and the other EOS in SU2

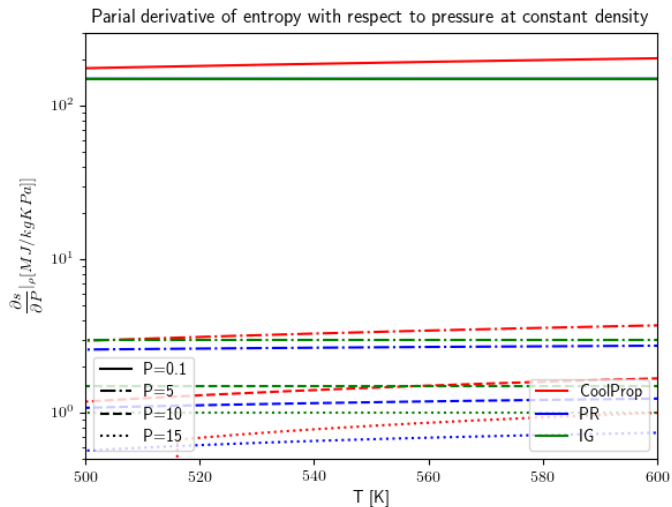
Density



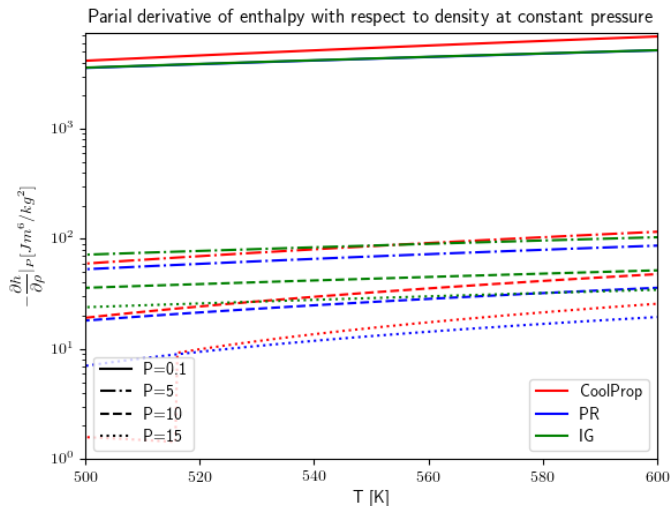
Entropy at constant pressure



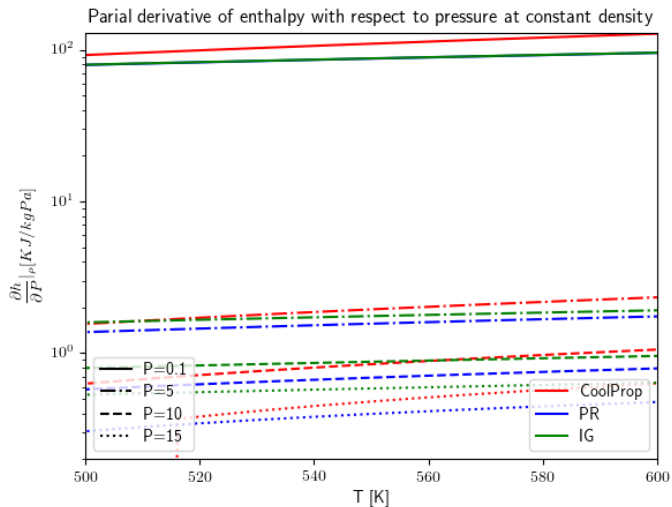
Entropy at constant density



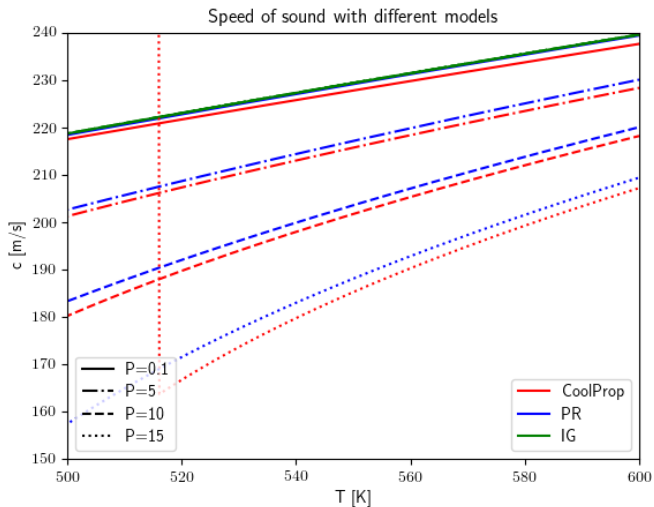
Enthalpy at constant pressure



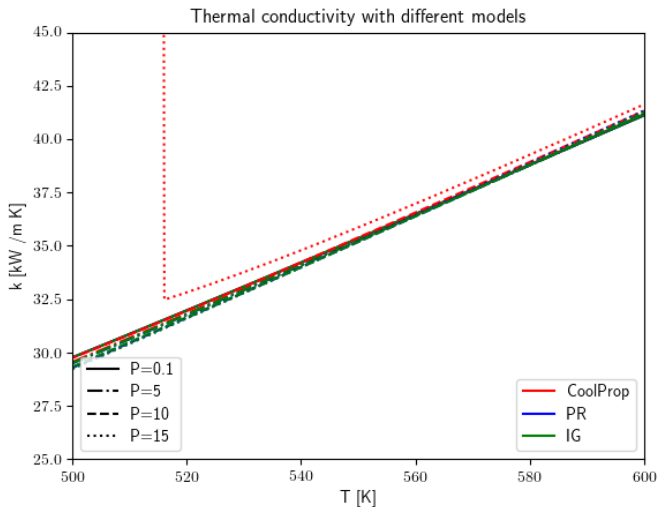
Enthalpy at constant density



Speed of sound



Thermal conductivity



Viscosity

