ME 812
Conductive Heat Transfer
Homework #2
Due

1. Graph the thermal conductivity versus the temperature from 250K to 1000K using the Chapman-Enskog kinetic theory model for CO₂. Also graph thermal conductivity values from an undergraduate heat transfer text book and compare.

2. It has been proposed that the difference in the convective heat transfer results obtained by measurements in the ME 412 lab is due to using “dry air” thermal conductivity in the calculations. To consider this hypothesis fully, create a table of thermal conductivity versus relative humidity using the Chapman-Enskog kinetic theory model with the Wilkie mixture rules. Take the temperature to be 295 K and the pressure to be atmospheric.