John Ahrens

Lucio Mondavi

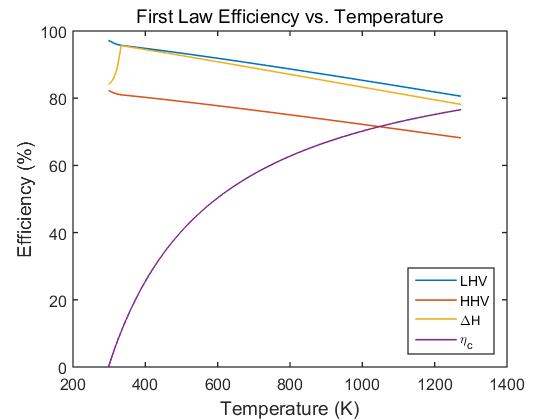
Vignesh Venkataraman

Richie Tran

**Project 4: PEM Fuel Cell Analysis**

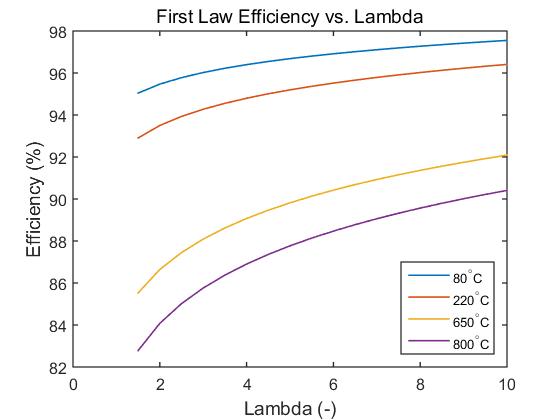
Team: Uno

ME 140



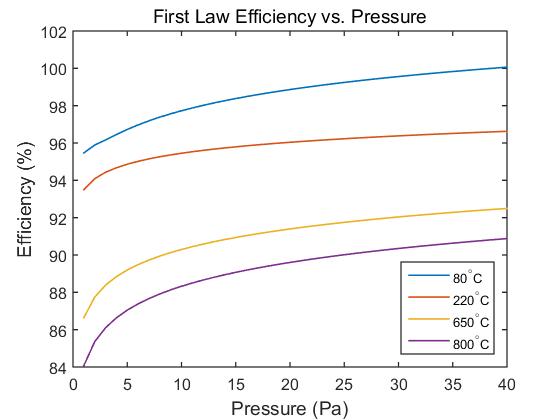
**Figure 1:** First law efficiency vs. Temperature

Maximum first-law efficiency was calculated using LHV, HHV, and actual deltaH. These three efficiencies were compared to the Carnot efficiency curve.



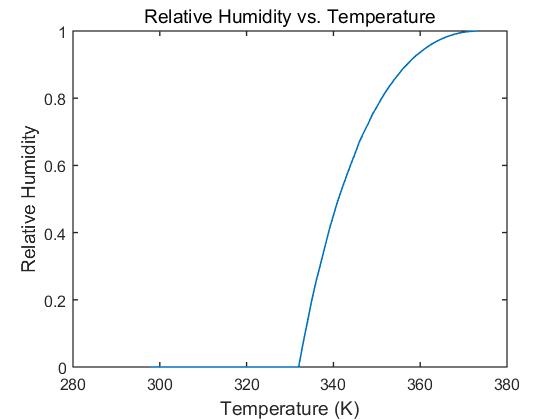
**Figure 2:** First law efficiency vs. Equivalence Ratio (Lambda)

Maximum first-law efficiency was calculated using LHV and a set pressure, while varying lambda. Efficiency was calculated using four different temperatures, representative of temperatures achieved in four different types of fuel cells.



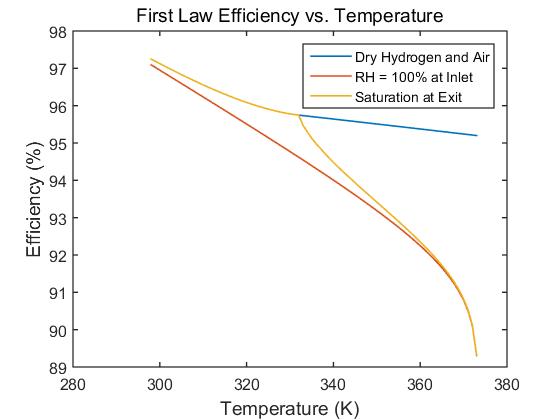
**Figure 3:** First law efficiency vs. Pressure

Maximum first-law efficiency was calculated using LHV and a set lambda, while varying pressure. Efficiency was calculated using four different temperatures, representative of temperatures achieved in four different types of fuel cells.



**Figure 4:** First law efficiency vs. Temperature

Relative humidity represents the amount of water vapor in the air over the maximum amount of water vapor the air can hold.



**Figure 5:** First law efficiency vs. Temperature

Maximum first-law efficiency was calculated against temperature using three different relative humidity conditions.