

2.996 Fundamentals of Advanced Energy Conversion Lecture Memo

Lecture number: 7

Date: February 25th, 2004

- **History of Thermodynamics: Thompson, Joule, Clausius, Carnot**
- **Chemical potential in fuel cells**
- **Review of Chemical Equilibrium**
 - Constant U,V constraints: Maximization of entropy**
 - Constant T,P constraints: Minimization of gibbs free energy**
 - Law of mass action**
 - Equilibrium constant**
 - Endothermic and exothermic reactions**
- **Fuel reforming**
 - Steam reforming**
 - Water gas shift**
- **Introduction to a chemical equilibrium program(Equil).**
- **Electrochemical energy conversion and storage**
 - Readings, objective and scope**