Editorial Board Member

Dr. S A Sherif

Professor

Department of Mechanical & Aerospace

Engineering

University of Florida

USA

Tel. 352 392 7821

Biography

- Dr. S.A. Sherif is a tenured Professor of Mechanical and Aerospace Engineering and is the Founding Director of the Wayne K. and Lyla L. Masur HVAC Laboratory. He is also the Director of the Industrial Assessment Centre and the Co-Director of the South eastern Centre for Industrial Energy Intensity Reduction at the University of Florida. He served on the faculties of the University of Florida (1991-present), University of Miami (1987-1991), and Northern Illinois University (1984-1987). He holds a Ph.D. degree from Iowa State University (1985) and B.Sc. (1975) and M.Sc. degrees (1978) from Alexandria University, all in Mechanical Engineering..

- Dr. Sherif is a Fellow of ASME, a Fellow of ASHRAE, an Associate Fellow of AIAA, a Member of Commission B-1 on Thermodynamics and Transfer Processes of the International Institute of Refrigeration, and a Member of the Advisory Board of Directors of the International Association for Hydrogen Energy. He is a past chair for the ASME Advanced Energy Systems Division, the K-19 Committee on Environmental Heat Transfer of the ASME Heat Transfer Division (2003-2007), the Coordinating Group on Fluid Measurements (1992-1994) and the Fluid Applications and Systems Technical Committee (2008-2010) of the ASME Fluids Engineering Division. He is also a past chair of the Steering Committee of the Intersociety Energy Conversion Engineering Conference (2001-2003), ASHRAE's Standards Project Committee 41.6 on Measurement of Moist Air Properties (1989-1994), and ASHRAE's TC1.1 Committee on Thermodynamics and Psychrometrics (2012-2013)..

>>>

- He also served as a member of the ASME's Energy Resources Board (2001-2003) and was the Board's representative to the ASME's International Mechanical Engineering Congress Committee (2003-2006). He was the Head of the Refrigeration Section of ASHRAE (2004-2008), the Technical Conference Chair of the 2008 ASME Summer Heat Transfer Conference, a member of the ASME Frank Kreith Energy Award Selection Committee (2005-2011), and the General Conference Chair of the 2013 ASME Summer Heat Transfer Conference. He is the 2013-2014 Chair of the ASME Heat Transfer Division Executive Committee (2009-2016) and a member of the ASME's Basic Engineering Group Operating Board (2010-2014).

Research Interests

- Heat Transfer
- Thermodynamics
- Thermal System Design and Optimization
- Spacecraft Thermal Management

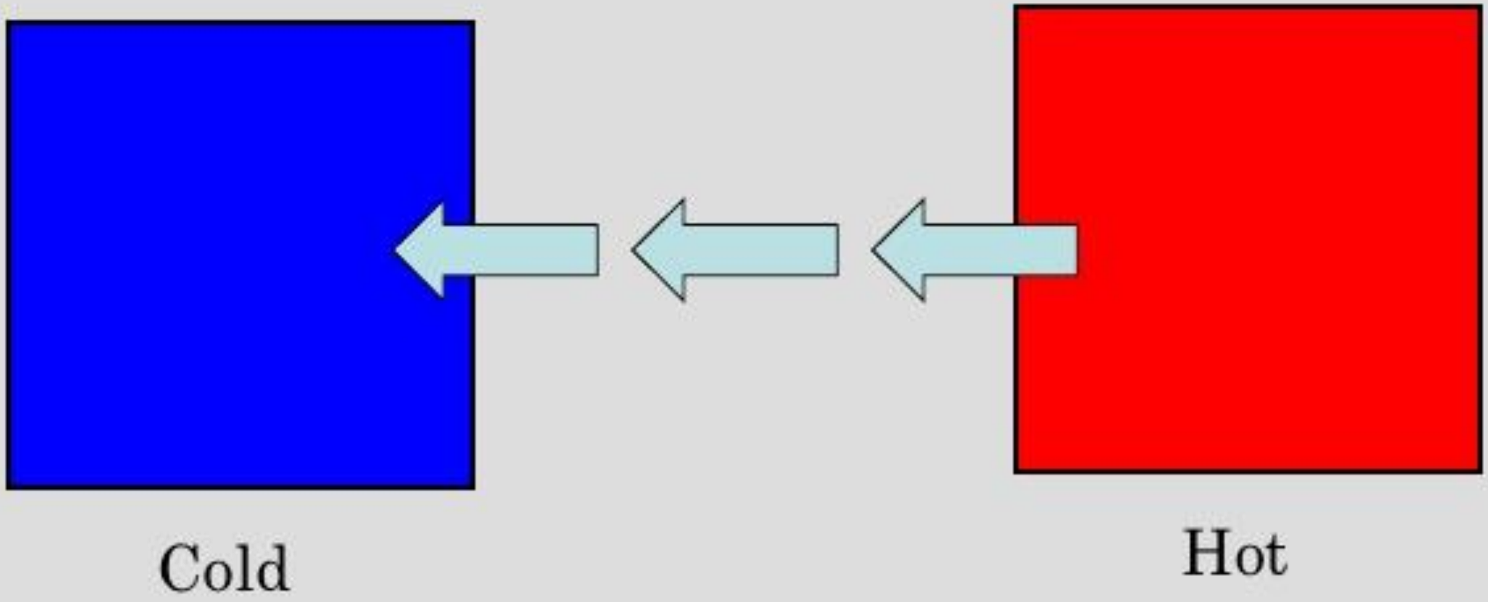
>>>

Heat Transfer

- Heat transfer explains the transfer of thermal energy, between physical systems depending on the temperature and pressure, by dissipating heat. The fundamental modes of heat transfer are conduction or diffusion, convection and radiation.
- Heat transfer always occurs from a region of high temperature to another region of lower temperature.
- The exchange of kinetic energy of particles through the boundary between two systems which are at different temperatures from each other or from their surroundings.

What is Heat Transfer?

- Heat (energy) always moves from a warmer substance to a cooler substance.



Types of Heat Transfer

- Heat transfer explains the transfer of thermal energy, between physical systems depending on the temperature and pressure, by dissipating heat. The fundamental modes of heat transfer are conduction or diffusion, convection and radiation.
- Heat transfer always occurs from a region of high temperature to another region of lower temperature.
- The exchange of kinetic energy of particles through the boundary between two systems which are at different temperatures from each other or from their surroundings.

Thermodynamics

Introduction

- Thermodynamics is a branch of physics concerned with heat and temperature and their relation to energy and work. It defines macroscopic variables, such as internal energy, entropy, and pressure, that partly describe a body of matter or radiation.
- Thermodynamics applies to a wide variety of topics in science and engineering.

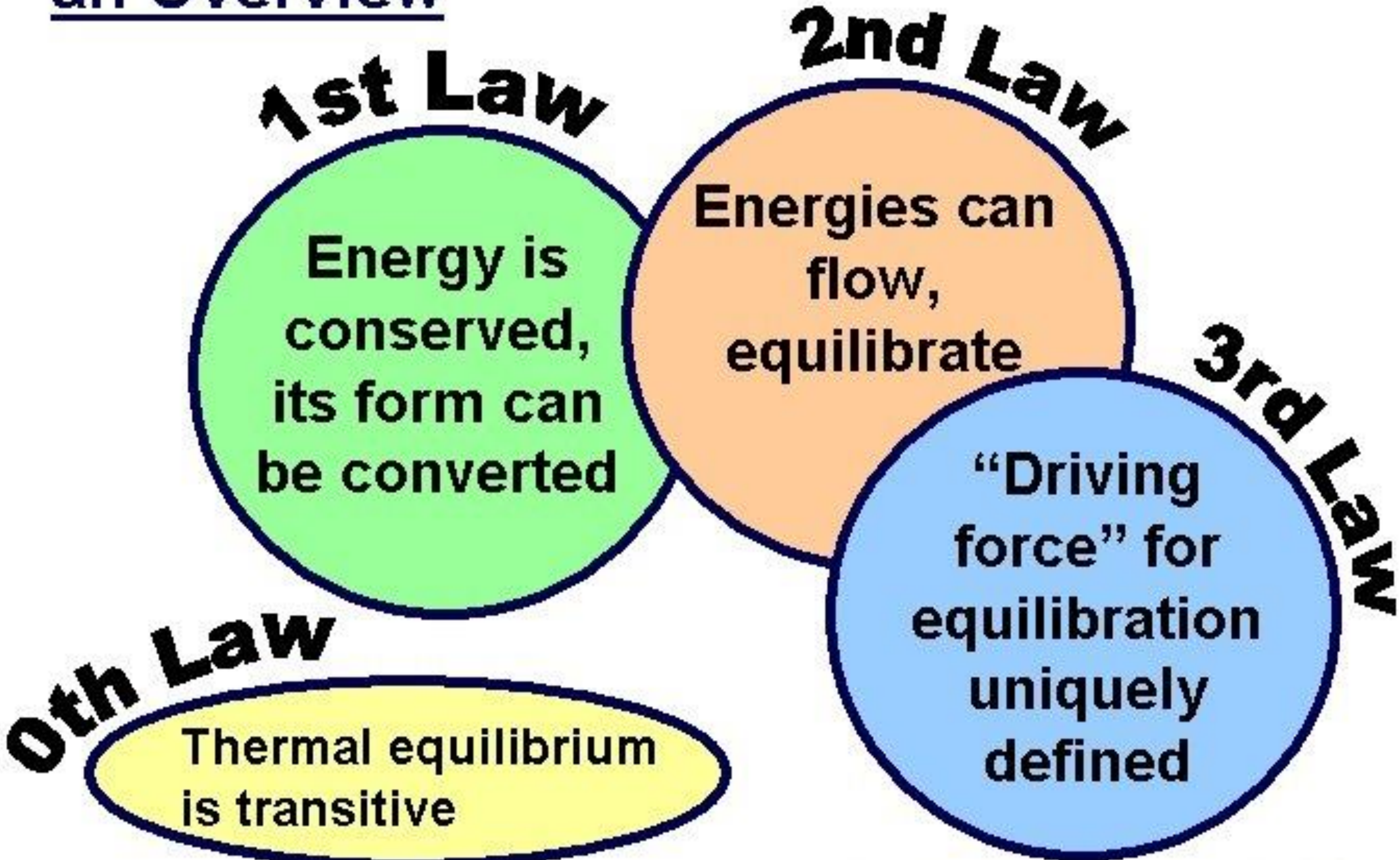
Laws of Thermodynamics

- The laws of thermodynamics, in principle, describe the specifics for the transport of heat and work in thermodynamic processes. Since their inception, however, these laws have become some of the most important in all of physics and other branches of science connected to thermodynamics.

Laws

- The **zeroth law** of thermodynamics, which underlies the definition of temperature.
- The **first law** of thermodynamics, which mandates conservation of energy, and states in particular that heat is a form of energy.
- The **second law** of thermodynamics, which states that the entropy of the universe always increases, or (equivalently) that perpetual motion machines are impossible.
- The **third law** of thermodynamics, which concerns the entropy of an object at absolute zero temperature, and implies that it is impossible to cool a system all the way to exactly absolute zero.

The Thermodynamics Laws,
an Overview



Applications of Thermodynamics

- enables one to derive relationships that quantitatively describe the nature of the conversion of energy from one form into another
- can be used to predict the equilibrium state of a reactive mixture as well as the natural direction of change in a system not at equilibrium
- thermodynamics can’t predict how long it takes for equilibrium to be reached

Thank You..!