Title: **Two Phase Flow Pattern Prediction**

Speaker: Dr. Ray-Sing Lin

Date: July 2nd, Monday Time: 11:00-12:00 ROOM: ME Room #114

Abstract:

Two phase flow of vapor/liquid mixtures in a horizontal pipe can exhibit different flow patterns. Flow regime maps based on volumetric fluxes have been used to identify different possible flow regimes including stratified, plug, slug, (bubbly), and annular. In this presentation, we will discuss a stability-theory based model that can be used to predict flow regime transition for wide range of pipe sizes and refrigerants. According to this model, the transition from stratified to annular is due to surface wave instability along the two-phase interface; while the transition from stratified to slug/plug is due to hydraulic jump. Predicted flow regime maps are in good agreement with classical Baker’s map (1954) of air/water, and a map of R134A of Coleman/Garimella (2003).