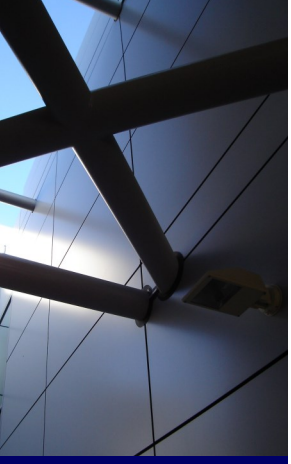

MECHANICAL ENGINEERING

The Department of Mechanical Engineering presents:

The Master's Dissertation Defense of:

Xi Chen

Thursday, August 14, 2014
11AM, Bourns Hall A275

An Investigation and Characterization of Metal Foam Filled Double-pipe Heat Exchangers

Master of Science, Graduate Program in Mechanical Engineering
University of California, Riverside, August 2014
Dr. Kambiz Vafai, Chairperson

Abstract:

The effect of using metal foams in double-pipe heat exchangers is investigated in this work. The advantages and drawbacks of using metal foams in these types of heat exchangers is characterized and quantified. The analysis starts with an investigation of forced convection in metal foam filled heat exchangers using Brinkman-Forchheimer-extended Darcy model and the LTE energy model. An excellent agreement is displayed between the present results and established analytical results. The presented work enables one to establish the optimum conditions for the use of metal-foam filled double-pipe heat exchangers.