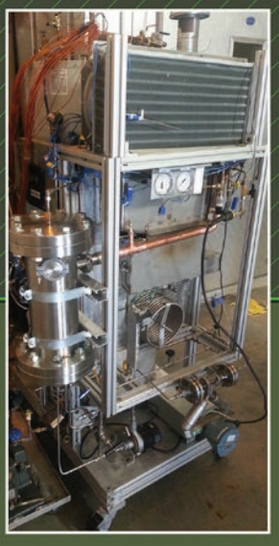
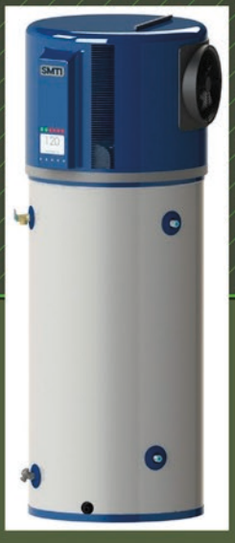
Building Technologies Research & Integration Center

Science Research Seminar Series

Sorption Heat Pumps for a Sustainable Economy





Monday, Dec. 16, 2013
9:00 AM – 10:00 AM
Bldg 4500N, Wigner Auditorium

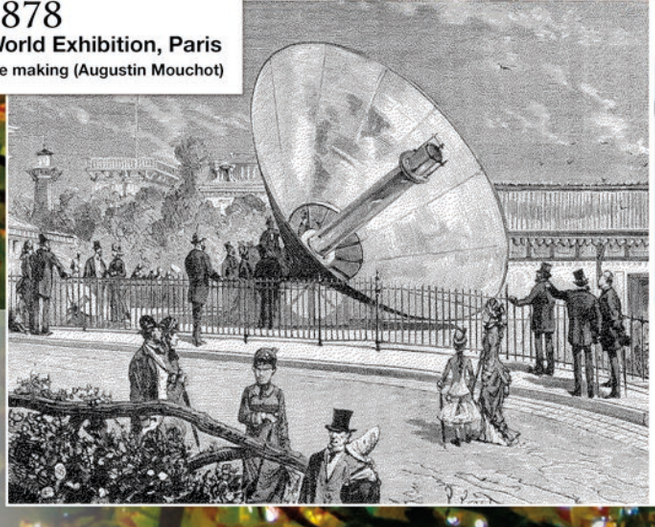
Sorption heat pumps use fuel, waste heat, or solar heat to provide heating, air conditioning, refrigeration and industrial thermal needs. Commercialized sorption heat pump systems and a dedicated research community have existed for over a century, however such systems remain found only in niche applications. In this seminar I will outline the ubiquitous applications in which such systems have significant potential for national energy savings, and the cutting edge research on cost-effective technologies that can enable such widespread use. Ongoing research at ORNL includes:

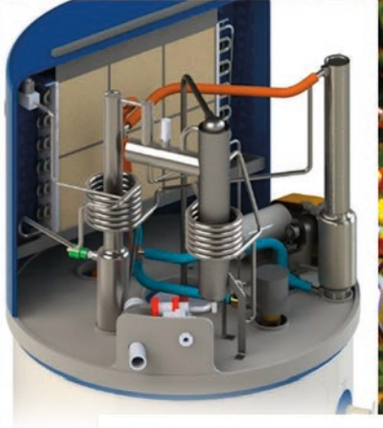
- membrane-based systems with the potential to be higher performance, lower cost and more compact
- computational fluid discovery through molecular dynamics simulations
- analytical models to facilitate understanding for researchers and policymakers, and enhance the efficiency of computational efforts
- prototype systems to demonstrate benefits
- wide-ranging collaborations with large market share businesses, innovative small businesses, and the international academic research community

Dr. Kyle Gluesenkamp completed his dissertation at the University of Maryland in 2012 on the topic of applying waste heat-driven air conditioning to residential combined heat and power (CHP) systems. In the last year with the Building Equipment Research Group at ORNL, he has led projects on fuel fired heat pump water heaters and other residential appliances. Dr. Gluesenkamp has published two book chapters, numerous peer-reviewed articles and invention disclosures, and has presented his work internationally for industrial and academic audiences.

Dr. Kyle Gluesenkamp

1878
World Exhibition, Paris
ice making (Augustin Mouchot)





TODAY
SMTI – water heating
(TN, USA)

OAK RIDGE National Laboratory

ORNL 2013-G01002/ass