



**2018
Industrial Advisory
Committee Meeting**

Guide to the Student Poster Show



College of Engineering
School of Mechanical Engineering
Architectural Engineering

Table of Contents

	PDF
	Pages
Title Page & Table of Contents	1-2
List of Poster Titles and Poster Numbers	3-9
High Performance Buildings (15 posters)	3-4
Heating, Ventilation, Air Conditioning, and Refrigeration HVAC&R (18 posters)	4-5
Vibrations and Acoustics (14 posters)	6-7
Robotics and Electromechanical Systems (12 posters)	7-8
Additive Manufacturing and Smart Materials, Vibrations and Acoustics (13 posters)	8-9
Quad Charts	10-81
High Performance Buildings Quad Charts (Posters: 1-15)	10-24
Heating, Ventilation, Air Conditioning, and Refrigeration HVAC&R (Posters: 16-33)	25-42
Vibrations and Acoustics (Posters: 34-47)	43-56
Robotics and Electromechanical Systems (Posters: 48-59)	57-68
Additive Manufacturing and Smart Materials, Vibrations and Acoustics (Posters: 60-72)	69-81

High Performance Buildings

1. Dynamic Modeling, Control, and Optimization of Micro-CHP Systems

PhD Student: Trevor Bird, Professor Neera Jain

2. Impact of Occupants' Behavior on Office Energy Use

PhD Student: Zhipeng Deng, Professor Qingyan Chen

3. Load-Based Testing to Characterize the Performance of Variable Speed Equipment

PhD Student: Parveen Dhillon, Professor James Braun

4. Eco-Feedback and Incentive Mechanism Design for Multi-Residential Building

PhD Student: Huijeong Kim, Professor Panagiota Karava

5. Demonstration of a Self-Tuned HVAC System

PhD Student: Seungjae Lee, Professor Thanos Tzempelikos

6. Detecting the Identifiable Characteristics of the Buildings for Automated Post-Event Reconnaissance

PhD Student: Ali Lenjani, Professor Shirley J. Dyke

7. Automated Image Localization for Post-Event Building Assessment

PhD Student: Xiaoyu Liu, Professor Shirley J. Dyke

8. The DC Micro-Grid House

PhD Student: Jonathan Ore, Professor Eckhard A. Groll

9. Identifying Peer Groups in a Multifamily Residential Building for Eco-Feedback Design

PhD Student: Sang woo Ham, Professor Panagiota Karava

10. Investigating How Energy Use Patterns Shape Indoor Nanoaerosol Dynamics in a Net-Zero Energy House

MS Student: Jinglin Jiang, Professor Brandon Boor

11. Innovative Design of Kitchen Range Hood

PhD Student: Zechao Lu, Professor Jun Chen, Qingyan Chen

12. Urban Atmospheric Aerosol Size Distributions: A Global Perspective

PhD Student: Tianren Wu, Professor Brandon Boor

13. Thermal Comfort in a Room with Displacement Ventilation and Chilled Beams

PhD Student: Zhu Shi, Professor Qingyan Chen

14. Characterization of a Thermal Flame Generator for HVAC Filter Loading Experiments: Impact of Operating Conditions on Sub-Micron Aerosol Size Distributions

PhD Student: Tianren Wu, Professor Brandon Boor

15. Dynamics of Fine and Ultrafine Particulate Matter in Biomass Burning Kitchens in Western Kenya

PhD Student: Danielle Wagner, Professor Brandon Boor

Heating, Ventilation, Air Conditioning and Refrigeration - HVAC&R

16. Vapor Compression Refrigeration for Cold Storage on Spacecrafts

PhD Student: Leon Brendel, Professor Eckhard A. Groll, James Braun

17. PIV Testing of a Residential Gas Furnace

PhD Student: Puyuan Wu, Professor Jun Chen

18. Cascade Transcritical Carbon Dioxide Refrigeration Cycle Utilizing Two-Phase Ejector

PhD Student: Riley Barta, Professor Eckhard A. Groll

19. The Chemical Looping Heat Pump

PhD Student: Nelson James, Professor James Braun, Eckhard A. Groll

20. CFD Analysis of PD Expanders

PhD Student: Saverio Randi, Professor Eckhard A. Groll

21. Oil Management in Tandem Compressors of Transport Refrigeration

PhD Student: Vatsal Shah, Professor James Braun, Eckhard A. Groll, Wm. Travis Horton

22. Oil Return and Retention in Unitary Split System Gas Lines

PhD Student: Vatsal Shah, Professor James Braun, Eckhard A. Groll

23. Viper Expander Applied in R410A Residential Heat Pump

MS Student: Lennart Stania, Professor Eckhard A. Groll

24. R245fa High-Temperature Waste Heat Recovery Organic Rankine Cycle

MS Student: Xueyang Xu, Professor Eckhard A. Groll

25. Chemisorption Heat Pumping for Cold Climate

PhD Student: Zhiyao Yang, Professor Ming Qu

26. An Experimental and Numerical Study on Dynamic Characteristics of Linear Compressors

PhD Student: Xinye Zhang, Professor Eckhard A. Groll

27. Development of General Purpose Simulation Tools for Positive Displacement Compressors

PhD Student: Xinye Zhang, Professor Eckhard A. Groll

28. Gas Pulsation Measurements in Positive Displacement Compressors

MS Student: Cai Rohleder, Professor Eckhard A. Groll

29. Polymer Components in Hermetic Compressors

PhD Student: David Halbrooks, Professor Eckhard A. Groll

30. Adhesive Bonding in HVAC&R Applications

PhD Student: Haotian Liu, Professor Eckhard A. Groll

31. Combined Plant and Control Design for Thermal Management Systems

PhD Student: Austin Nash, Professor Neera Jain

32. Inverter Drive Control for Fixed Speed Heat Pumps

PhD Student: Nick Salts, Professor Eckhard A. Groll

33. Framework to Enable Impact-Based Innovation for Smart, Sustainable Buildings

PhD Student: Dominique Lumpkin, Professor Wm. Travis Horton

Vibrations and Acoustics

34. Sound Quality Evaluation of Residential HVAC&R Equipment

PhD Student: Weonchan Sung, Professor Patricia Davies

35. Traveling Thermoacoustic Waves in Solids

PhD Student: Haitian Hao, Professor Fabio Semperlotti

36. Aerodynamic Analysis of a Bladeless Fan

MS Student: Ang Li, Professor Jun Chen

37. Application of Acoustic Radiation Mode

PhD Student: Jiawei Liu, Professor J. Stuart Bolton

38. Effects of Time-Varying Wind Conditions on Perception of Wind Noise in Vehicles

PhD Student: Daniel Carr, Professor Patricia Davies

39. Dynamic Design of Bi-stable Oscillators with Synchronized Switching

PhD Student: Janav Udani, Professor Andres F. Arrieta

40. Dynamics of an Array of Coupled, Mistuned Crystal Resonators

PhD Student: Conor Pyles, Professor Jeffrey F. Rhoads

41. Diesel Engine Low-Load Fuel-Efficient Emissions Control

PhD Student: Kalen Vos, Professor Gregory Shaver

42. Sound Source Identification with Compressive Sensing Method

PhD Student: Tongyang Shi, Professor J. Stuart Bolton

43. Treatment of Enhancement Problem in Active Noise Control

MS Student: Xuchen Wang, Professor J. Stuart Bolton

44. Four-Microphone Measurement of Transmission Loss of Automotive Door Seals: Improved Correction Factor

MS Student: Weimin Thor, Professor J. Stuart Bolton

45. Tire Structure-Borne Noise Study using FE Simulation

PhD Student: Rui Cao, Professor J. Stuart Bolton

46. Numerical Integration Techniques for Outdoor Sound Prediction

PhD Student: Jianxiong Feng, Professor Kai Ming Li

47. Doppler's Shift on Aircraft Noise Prediction

PhD Student: Yiming Wang, Professor Kai Ming Li

Robotics and Electromechanical Systems

48. Variable Valve Actuation For Improved Diesel Engine System Efficiency

PhD Student: Mrunal Joshi, Professor Gregory Shaver

49. Harnessing Connectivity to Improve Efficiency of Class 8 Trucks

MS Student: Ifeoluwa Ibitayo, Professor Gregory Shaver

50. Control Analysis for High BMEP Gasoline Engines

MS Student: Xu Zhang, Professor Gregory M. Shaver

51. Multiscale Modelling of Triboelectric Energy Harvesters

PhD Student: Hongcheng Tao, Professor James Gibert

52. Automatic Image Segmentation for Deep-Learning

PhD Student: Arindam Chowdhury, Professor David J. Cappelleri

53. Autonomous Aerial Manipulation with UAVs

PhD Student: Daniel McArthur, Professor David J. Cappelleri

54. Oscillator Array Based Sensing

PhD Student: Allison Murray, Professor Jeffrey F. Rhoads

55. Autonomous Image Localization for Visual Assessment

PhD Student: Jongseong Choi, Professor Shirley J. Dyke

56. Reimagining Human-Machine Interactions Through Trust-Based Feedback

PhD Student: Kumar Akash, Professor Neera Jain

57. Powering What's Next in Freight Transportation

PhD Student: Ana Guerrero de la Peña, Professor Neera Jain

58. AgBug: Mobile Robot for Precision Agriculture

MS Student: Che Kun Law, Professor David J. Cappelleri

59. Iterative Learning Control for Twin Roll Strip Casting

PhD Student: Florian Browne, Professor Neera Jain

Additive Manufacturing and Smart Materials, Vibrations and Acoustics

60. Switchable Bistability in 3D Printed Shells

PhD Student: Katie Riley, Professor Andres F. Arrieta

61. Demonstrator for Selectively Compliant Morphing Systems with Multi-Stable Structures

PhD Student: David Boston, Professor Andres F. Arrieta

62. Additively Manufactured Conductive Polymer Spark Gap Igniters

MS Student: Miranda McConnell, Professor Jeffrey F. Rhoads

63. Energy Harvesting in Phase Transforming Cellular Materials(PXCM)

PhD Student: Aman Thakkar, Professor Andres F. Arrieta

64. 3D Printing of Energetic Structural Materials

PhD Student: Trevor Fleck, Professor Jeffrey F. Rhoads

65. Modeling of Membrane-Based Liquid Desiccant Dehumidifier

MS Student: Xiaoli Liu, Professor Ming Qu

66. Weight Minimization of Automotive Sound Packages in the Presence of Air Leaks

PhD Student: Hyunjun Shin, Professor J. Stuart Bolton

67. Fractional Calculus Homogenization Model

PhD Student: John Hollkamp, Professor Fabio Semperlotti

68. Input-Independent Wave Propagation in Bistable Lattices with Elastic Interactions

PhD Student: Myungwon Hwang, Professor Andres F. Arrieta

69. Multi-functional Acoustic/Damping Materials

PhD Student: Yutong Xue, Professor J. Stuart Bolton

70. Mechanically Dissipating Targeted Vibrational Modes within Turbomachinery

MS Student: Christian Grantz, Professor Andres F. Arrieta

71. Measurement Unit Load Stability Transportation Hazards

PhD Student: Amin Joodaky, Professor James Gibert

72. Thermomechanical Behavior of Explosives at High Frequency

PhD Student: Allison Range, Professor Jeffrey F. Rhoads