



ANNOUNCEMENT and CALL for PAPERS

21st International Compressor Engineering Conference at Purdue
14th International Refrigeration and Air Conditioning Conference at Purdue
2nd International High Performance Buildings Conference at Purdue

Campus of Purdue University in West Lafayette, Indiana, USA

Short Courses: July 14-15, 2012
Conferences: July 16-19, 2012

General Chair: *Eckhard A. Groll*

International Compressor Engineering Conference Chair: *W. Travis Horton*

International Refrigeration and Air Conditioning Conference Chair: *James E. Braun*

International High Performance Buildings Conference Chair: *Thanos Tzempelikos*

Short Course Chair: *Ming Qu*

Student Paper Competition Chair: *Panagiota Karava*



Sponsored by: The Ray W. Herrick Laboratories, School of Mechanical Engineering,
Purdue University, West Lafayette, Indiana, USA

Co-Sponsored by: ACCA, AHRI, ASHRAE, IIR, USGBC and USNC/IIR

It has been a tradition for Purdue University to host the International Compressor Engineering Conference since 1972, the International Refrigeration and Air Conditioning Conference since 1986 and the International High Performance Buildings Conference since 2010. The conferences, held every two years, bring together more than 500 people from over 30 countries. In 2010 it was particularly exciting to see the large number of young, international researchers taking part in the conferences. There was a vibrancy and excitement in the atmosphere at the conferences with very lively discussions taking place in all sessions and the audiences appeared to be paying careful attention to the details of the work being presented. These conferences provide a perfect venue to present research and development work and to get feedback from the top experts in the field well versed in both theory and the challenges of making good ideas work in practice. The barbeque, conference luncheon, opening night reception, and the coffee breaks provide great opportunities to continue discussions in a more informal setting and to meet and make new friends in this technical community. Our participants agree that these conferences are technically interesting and a great experience!

Short Courses: July 14-15, 2012

The short courses will take place prior to the 2012 Conferences on the Purdue University campus beginning on Saturday, July 14th at 1:00 p.m. and ending on Sunday, July 15th at 5:00 p.m. The conference website will be updated with more details about the short courses in the future. The topics of the short courses are:

- **Advanced Compressor Modeling (Compressors 102)**

will be organized by the Herrick Laboratories' Faculty and Graduate Students. This short course will review and extend some of the modeling techniques developed during the 2010 compressor short course (Compressors 101). It will provide a detailed description of the mathematical modeling tools necessary to analyze positive displacement compressors. In particular, the short course will focus on hermetic scroll, rotary and reciprocating compressors. Submodels for leakage, valve, heat transfer, and frictional losses will be described in detail. An example of a compressor simulation model will be made available to the course participants. Parametric studies will be performed to investigate the impact of variation in geometric parameters on the compressor performance.

- **Update on Refrigerants**

will be organized by the U.S. National Committee of the IIR in collaboration with the Herrick Laboratories' faculty. This course will provide an update of the latest uses of refrigerants in heat pump, air conditioning and refrigeration applications. The course will review past, present and future refrigerants used in industrial, commercial and residential applications. In addition to comparing the refrigerants performance, issues such as environmental, safety and flammability characteristics will be discussed in detail. Recognized experts from around the world will share their knowledge and real-world experiences.

- **Fundamentals of Building Energy Auditing and Energy Management**

will be organized by Travis Horton, Ph.D., P.E. and Dan Schuster, P.E., C.E.M. Topics include building energy auditing methods for assessing energy consumption and evaluating energy conservation opportunities in residential, commercial, institutional, and industrial buildings. Additionally, participants will learn to analyze electric utility rate tariffs to seek opportunities for more favorable rates, and will gain a better understanding of natural gas markets and the potential to hedge gas in an effort to manage risk related to market volatility.

Conferences: July 16-19, 2012

The conferences will begin on Monday, July 16, 2012 at 10 a.m. and end on Thursday, July 19, 2012 at 3:30 p.m. They will be held on the campus of Purdue University, West Lafayette, Indiana, USA. The conferences' technical sessions run simultaneously enabling attendees to attend sessions of interest from any conference. The conferences will be conducted in English. Conference registration includes a CD-ROM with all conferences' proceedings, copies of 20 individual papers, a Monday night reception, the Wednesday Steak BBQ, the Tuesday luncheon, and a Thursday box lunch (needs an advance ticket). Transportation between venues will be available to attendees by hotel courtesy vans, trolleys and Purdue buses.



Sponsors

The 2010 Conferences had eight great sponsors for our social events and student paper competition. They were Danfoss, Inc, Worldwide; Emerson Climate Technologies, USA; Shanghai Hitachi Electrical Appliance Co., Ltd., China; Grundfos Pump Corporation, Kawneer Company (Alcoa); Lutron Electronics Co., Inc. and Tecumseh Products Company USA. If your company or organization is interested in becoming a sponsor of the conferences, please contact us. More information can be found on the conference website www.engineering.purdue.edu/Herrick/events/. Please note that sponsorships can be shared.

Accommodations

The list of contacts and rates of various hotels and Purdue facilities will be available on the Conference website soon. The First Street Towers on the Purdue campus is a dorm style facility and will be available for this conference. Special room rates will be available to attendees. These special rates may not be on the website until December, so keep checking the website.

Submit an Abstract and Paper for the Conference

Use the online abstract and paper submission website at www.conftool.com/2012Purdue. Abstracts and papers must be written in English. Abstracts are due on December 12, 2011. Do not send a duplicate of the abstract by e-mail. Please provide as much information about each author as possible, list their full names as they want it to appear in the program and also indicate the part of the name to be used in the author index. An acknowledgement e-mail for your submission will be sent to the required presenting author with a Reference Number immediately after your abstract has been submitted. Choose a topic from any conference. It may be necessary to reassign your abstract to the other conferences after it is reviewed. If this happens, you will be notified of the reassignment.

Abstract and manuscript submissions have to be made directly through the online abstract and paper submission website at www.conftool.com/2012Purdue. Note that the site will not allow late submission. Only one individual can be the required presenting author for up to three papers. The required presenting author of each paper has to be registered for the conferences **by the March 30th deadline** or the paper will **not be published**. We suggest that you check the conference website for the latest details at engineering.purdue.edu/Herrick/Events.

The topics of interest are listed on the next page.

Proposed Conference Session Topics



International Compressor Engineering Conference:

Numerical Modeling of Compressors
CFD & FEA Modeling of Compressors
Compressor Thermal Management
Compressor Valve Design and Analysis
Compressors for Air and Industrial Gases
Compressors for Alternative and Flammable Refrigerants
Automotive Compressors
CO₂ Compressors and Expanders
Compressor Efficiency Enhancements
Tribology and Lubrication in Compressors
Noise Reduction Technologies
Reciprocating Compressors
Rotary Compressors
Screw Compressors
Scroll Compressors
Linear Compressors
Centrifugal Compressors
Novel Compressor Mechanisms and Concepts
Capacity Modulation Concepts
Variable Speed Compressor Technologies



International High Performance Buildings Conference:

Net Zero Energy Buildings
Renewable Energy Systems in Buildings & Geothermal
Radiant Systems & Thermal Controls
Smart Buildings and Building Automation Systems
HVAC Systems & Controls
Building Envelopes, Facades & Lighting
Innovative Building Materials
Airflow, Ventilation & Indoor Air Quality
Solar Energy Utilization in Buildings
Building Simulation & Energy Modeling
Sustainable & Green Building Technologies
Case Studies & Integrated Building Design

Student Paper Competition

The 2010 Conferences launched the Student Paper Competition with 1st, 2nd, and 3rd placed winners in each of the three conferences receiving \$1,000, \$500 and \$250, respectively. This time, the competition will be held in specially organized sessions for each conference. Please inform and encourage students to participate. Deadlines for abstract and paper submission are the same as for everyone else. Students that want to enter the competition should indicate this when submitting their papers. The following list gives the eligibility information for the competition:

- Students at the undergraduate and graduate level at the time of submission are eligible to compete.
- Students must be first authors on the papers and must present their work at the conferences to compete.

Additional information about the evaluation criteria, paper presentation and selection process will be posted on the conference website.



International Refrigeration and Air Conditioning Conference:

Heat Exchanger Performance Characterization
Air-Side HX Characterization & Performance
Micro-Channel Heat Exchangers
Heat & Mass Transfer Enhancements
Heat Exchanger Modeling & Design
Refrigerant Assessments
Refrigerant Heat Transfer & Pressure Drop
Refrigerant & Oil Properties
Lubricant Characterization & Design
Refrigerant Throttles & Expanders
AC Equipment Characterization & Enhancement
Heat Pumps
Transportation Air Conditioning Equipment
Domestic Refrigeration
Commercial Refrigeration
Industrial Refrigeration
Quasi-Steady Modeling of AC&R Systems
Dynamic Modeling
Vapor Compression Cycle Improvements
Alternative Cooling Technologies
Heat-Driven Refrigeration Systems
Power & Co-Generation Systems
Fault Detection & Diagnostics



Important Dates and Deadlines

December 12, 2011	Abstract submission deadline.
January 15, 2012	Abstract acceptance notification and instructions to authors for manuscript preparation.
March 30, 2012	Manuscripts submission deadline; the presenting author must be registered for the conferences at this time.
April 27, 2012	Notification to presenting authors of acceptance or rejection of manuscripts; if paper is rejected, the presenting author registration fee is reimbursed in full.
May 25, 2012	Pre-Registration for the conferences ends. Final version of the papers must be uploaded at this time or the Final Paper WILL NOT BE published in the proceedings.
July 16-19, 2012	Conferences take place.

Registration Fees

Short Courses:

- Registration fees will be **\$625** for advanced full registration. The full registration fee of **\$700** will be due **after May 25, 2012**.

Conferences:

- Non-author registration fee is **\$675 by May 25, 2012** and **\$750 after May 25, 2012**.
- Required presenting author registration fee is **\$625 due by March 30, 2012**.
- Required student author registration fee is **\$225** for presenting one paper, **\$425** for presenting two papers, and **\$625** for presenting three papers, **due by March 30, 2012**.
- Non-author student registration fee is **\$300**.
- Group full registration discount: 6 people from same company & location receive 1 free full registration, i.e. 5 paid and 1 free registrations.

How to Register and Pay Fees

- Conference **registration** and other fees may be paid **ONLINE**. Registration will be active after January, 2012. Go to www.conf.purdue.edu/compressor, and click on 2012 Conferences. A Registration Form can be downloaded from our website after January, 2012. If you would prefer to register by fax or e-mail, please download the registration forms for the conferences or short courses and send them to Kathy Walters at kw@purdue.edu.
- If you or your company has to pay by wire transfer, Purdue University has a new procedure. Please send an email request for Wire Payment Instructions to confirm@purdue.edu. Kathy Walters at kw@purdue.edu or 765/494-2758 can also help you complete the wire transfer transaction. The process will go much easier if you include attendee(s) name, company or organization and reference the 2012 conference or short course. Purdue University is not allowed to give out banking information unless you receive it from an official Purdue employee.
- Registration fees cover attendance at all conferences and include a CD-ROM with proceedings of all 3 conferences, copies of 20 individual papers, a reception, the BBQ steak outing, the Tuesday luncheon and the Thursday box lunch (with an advanced ticket).
- Printed copies of the proceedings for all conferences may be ordered for delivery **after** the conferences.
- All fees must be paid in U.S. funds and drawn on a U.S. bank account. Fees paid in advance but not used will be refunded upon written request by June 22, 2012.
- Once your abstract has been approved, please contact your embassy for an appointment so that you have enough time to get a visa. The process of getting a visa can take up to several months, depending on your embassy.
- You may also purchase a spouse/guest fee for the special meals served during the conferences for \$100.
- Two CEUs (Continuing Education Units) will be offered for those who attend all technical sessions during the duration of the conferences. One CEU (Continuing Education Unit) will be offered for attending any one of the short courses. You will be given the paperwork to complete at registration/check-in.

The Organizing Committee

Eckhard A. Groll	General Conference Chair
James E. Braun	International Refrigeration and Air Conditioning Conference Chair
W. Travis Horton	International Compressor Engineering Conference Chair
Thanos Tzempelikos	International High Performance Buildings Conference Chair
Ming Qu	Short Course Chair
Panagiota Karava	Student Paper Competition Chair
Other Members	Douglas Adams, Patricia Davies, Craig Bradshaw, Brandon Woodland, Howard Cheung, Christian Bach, Seth Holloway, Abhinav Krishna and Hui Shen

Co-Sponsoring Organizations

Air-Conditioning Contractors of America (ACCA)
Air-Conditioning, Heating and Refrigeration Institute (AHRI)
American Society of Heating Refrigeration and Air-Conditioning Engineers, Inc. (ASHRAE)
International Institute of Refrigeration (IIR)
U.S. Green Building Council (USGBC)
United States National Committee for the International Institute of Refrigeration (USNC/IIR)

Cooperating Organizations

Association of Home Appliance Manufacturers (AHAM)
Canadian Smart Net-zero Energy Buildings Strategic Research Network (SNEBRN)
Chinese Association of Refrigeration (CAR)
Deutscher Kaelte-und Klimatechnischer Verein (DKV)
Electric Power Research Institute (EPRI)
International Institute of Ammonia Refrigeration (IAR)
Japanese Society of Mechanical Engineers (JSME)
Refrigeration Service Engineers Society (RSES)

Primary contact for all areas of the conferences and short courses:

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Contact for questions about registration and payment:

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