8th International Conference on Compressors and their Systems
9 - 10 September 2013, City University London

PROGRAMME
# 8th International Conference on Compressors and their Systems

## 9-10 September 2013 – City University London

### Sunday 8 September 2013

<table>
<thead>
<tr>
<th>Time</th>
<th>Event/Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>18:00 - 20:00</td>
<td>Evening drinks reception and early registration</td>
<td>Oliver Thompson Foyer, Northampton Square site of City University London</td>
</tr>
</tbody>
</table>

### Monday 9 September 2013: Day 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Event/Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>Registration and coffee</td>
<td>Oliver Thompson Foyer</td>
</tr>
<tr>
<td>09:15</td>
<td>Opening Address</td>
<td>Oliver Thompson Lecture Theatre (OTLT)</td>
</tr>
<tr>
<td>09:15</td>
<td>Opening Address</td>
<td>OTLT</td>
</tr>
<tr>
<td>09:25</td>
<td>Chairman’s Welcome</td>
<td>City University London</td>
</tr>
<tr>
<td>09:30</td>
<td>Keynote Session 1</td>
<td>City University London</td>
</tr>
<tr>
<td>09:30</td>
<td>Keynote Session 1</td>
<td>City University London</td>
</tr>
<tr>
<td>10:30</td>
<td>Presentation Session</td>
<td>OTLT</td>
</tr>
<tr>
<td>10:30</td>
<td>Presentation Session</td>
<td>OTLT</td>
</tr>
<tr>
<td>11:20</td>
<td>Coffee Break</td>
<td>Oliver Thompson Foyer</td>
</tr>
<tr>
<td>13:00</td>
<td>Lunch break</td>
<td>Oliver Thompson Foyer</td>
</tr>
</tbody>
</table>

## Session 1 – Compressors and Fluids

**Chaired by Andy Pearson**

1. **Experimental study of compressors operating characteristics and performances when using refrigerants R32, R1234yf, and two new very low GWP developmental refrigerants as drop-in replacements for R410A**
   - Lorenzo Cremaschi, Xiaoxiao Wu, Auvi Biswas, Pratik Deokar
   - Oklahoma State University, United States of America

2. **Performance and suitability comparisons of some R22 possible substitute refrigerants**
   - Alison Subiantoro1, Kim Tiow Ooi2, Ahmad Zaki Junaidi1
   - 1Nanyang Technological University, Singapore; 2Technische Universität München - (TUM CREATE), Singapore

3. **CFD grid generation and analysis of screw compressor with variable geometry rotors**
   - Sham Rane, Ahmed Kovacevic, Nikola Stosic, Madhulika Kethidi, City University, United States of America

4. **CFD modelling of scroll compressor intermediate discharge ports**
   - Brian Angel1, Pierre Ginies2, Christophe Ancel2, Dominique Gross2,1
   - Renuka, France; 2Danfoss Commercial Compressors, Trévoux, France

## Session 2 – Expanders 1

**Chaired by Vincent Lemort**

1. **Physics of a Dry Running Unsynchronized Twin Screw Expander**
   - Jan Hütker1, Andreas Bruemmer2
   - 1Moklansa GmbH, Germany; 2TU Dortmund, Germany

2. **Performance and suitability comparisons of some R22 possible substitute refrigerants**
   - Alison Subiantoro1, Kim Tiow Ooi2, Ahmad Zaki Junaidi1
   - 1Nanyang Technological University, Singapore; 2Technische Universität München - (TUM CREATE), Singapore

3. **CFD Evaluation of a Twin Screw Expander**
   - Ahmed Kovacevic, Sham Rane
   - City University London, United Kingdom

## Session 3 – CFD in Positive displacement compressors

**Chaired by Ahmed Kovacevic**

1. **Use of computational fluid dynamics to develop improved one dimensional thermodynamic analyses of refrigerant screw compressors**
   - Jack Sauls, Scott Branch, Ingersoll Rand, United States of America

2. **CFD grid generation and analysis of screw compressor with variable geometry rotors**
   - Sham Rane, Ahmed Kovacevic, Nikola Stosic, Madhulika Kethidi, City University, United States of America

3. **CFD modelling of scroll compressor intermediate discharge ports**
   - Brian Angel1, Pierre Ginies2, Christophe Ancel2, Dominique Gross2,1
   - Renuka, France; 2Danfoss Commercial Compressors, Trévoux, France

4. **Flow and performance investigation of the specially designed channel diffuser of centrifugal compressor**
   - Mykola Kalinkevych, Andrey Skoryk, Sumy State University, Ukraine

## Session 4 – Turbo Machines

**Chaired by Keith Pullen**

1. **Oil-free centrifugal refrigeration compressors: from HFC134a to HFO1234ze (E)**
   - Joost Brasz, Danfoss Turbocor Compressors, USA

2. **Universal modeling method application for development of centrifugal compressor model stages**
   - Kristina Soldatova, Yuri Galerkin, TU Saint-Petersburg Russia

3. **Investigation of Gas Flow with Injection in Vaneless Diffuser of Centrifugal Compressor**
   - Oleg Shcherbakov, Mykola Kalinkevych, Viktoriya Ihnatenko
   - Sumy State University, Ukraine

## Poster Session 1

**Chaired by Oliver Thompson Foyer**

1. **Influence of the suction arrangement and geometry of the inlet port on the performance of twin screw compressors**
   - Maria Pascu, Manoj Heiyanthudwage, Sebastien Mounoury, Graeme Cook, Howden Compressors Ltd, United Kingdom

2. **Experimental Study of Radial Low Specific Speed Turbocompressor running in Reverse as Turbo Expander**
   - Mohammad Arjeneh1, keith Pullen2, Shahram Etemad2
   - 1City University, United Kingdom; 2Dynamic Boosting System limited
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chairer</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:15</td>
<td>Presentation Session</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>Coffee Break</td>
<td>Oliver Thompson</td>
<td>Foyer</td>
</tr>
<tr>
<td>16:00</td>
<td>Presentation Session</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17:40</td>
<td>Close of day 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Assessment of Reed Valve Dynamic Behavior in a Scroll Compressor Through Visualization
Augusto J P Zimmermann,1 Predrag S Hrnjak,2
1University of Illinois at Urbana-Champaign, USA; 2CTS - Creative Thermal Solutions Inc., USA

### Analysis of the basic geometrical parameters influence on the efficiency of the Roots-type compressor on the basis of thermodynamic processes simulation
Sergey Vizgalov, Alfred Ibraev, Ibragim Khisameev, Kazan National Research Technological University, Russia

### Numerical Analysis of Unsteady Behaviour of an Oil Flooded Screw Compressor System
Ekaterina Chukanova, Nikola Stosic, Ahmed Kovacevic, City University, United Kingdom

### The development of a flexible open-source simulation package for the prediction of the quasi-steady performance of positive displacement compressors and expanders
Ian Bell1, Vincent Lemort1, Eckhard Groll2, James Braun2, W. Travis Horton2, 1University of Liège, Belgium; 2Purdue University, USA

### Fatigue Design and Safety Factor for Scroll Compressor Wraps
Dominique Gross, DANFOSS Commercial Compressors, France

### Simulation of Expansion Process in Positive Displacement Expander
Kirill Ignatiev, Michael Perevozchikov, Emerson Climate Technologies, USA

### Simulation model to predict temperature distribution along scroll wraps
Marco C. Diniz1, Evandro L.L. Pereira2, Cesar J. Deschamps1
1Federal University of Santa Catarina, Brazil; 2Embraco, Brazil

### Investigation on a scroll expander for waste heat recovery on internal combustion engines
Arnaud Legros1,2 Ludovic Guillaume1, Vincent Lemort1, Mouad Diny2, Ian Bell1, Sylvain Quoilin1
1University of Liège, Belgium; 2PSA Peugeot Citroën, France

### Calculation of discharge pressure pulsations of a screw compressor using the one-dimensional method of characteristics
Andreas Linkamp, Andreas Brümmer, TU Dortmund University, Germany

### Oil Level Measurement in Oil-Injected Screw Compressor Packages used in the Petroleum, Petrochemical, Refrigeration and Fuel Gas Markets
William James Milligan, David Muir, David K Harrison, Howden Process Compressors, United Kingdom

### Discussion of profile clearances calculation method in rotary compressors in the absence of rotor timing units
Timur Mustafin1, Ruslan Yakupov1, Ibragim Khisameev1, Mansur Khamidullin1, Victor Nalimov2
1Kazan National Research Technological University, Russian Federation; 2NIIturbocompressor named after V.B.Shnepp CJSC, Russia

### Simulation of a cold climate heat pump furnished with a scroll compressor with multiple injection lines
Ian Bell1, Eckhard Groll1, James Braun2, W. Travis Horton2, 1University of Liège, Belgium; 2Purdue University, USA

### Theoretical analysis of loads on the gate rotor bearings in the single screw compressor
Ting Li, ZengLi Wang, Rui Huang, Weifeng Wu, Quanke Feng Xi'an Jiaotong University, China

### Compressor for exhaust treatment of non-road vehicles
Ronald Sachs, Wolfgang Asal, Gardner Denver Schopfheim GmbH, Germany

### Investigation of heat exchange in the working chamber of rotary compressors
Irek Sharapov, Almaz Saiifetdinov, Alfred Ibraev, Mansur Khamidullin, Ibragim Khisameev, Kazan national research technological university, Russia

### Screw Pulsation Generation & Control: A Shock Tube Mechanism
Paul Xiubao Huang, Sean Yonkers, Hi-Bar MC Technologies, LLC., United States of America

### Location
- Session 5 – Scroll Compressors
  - Location - OTLT
  - Chaired by Jack Sauls

- Session 6 – Expanders 2
  - Location - CG04
  - Chaired by Joost Brasz

- Session 7 – Screw Compressors 1
  - Location - OTLT
  - Chaired by Nikola Stosic

- Session 8 – System Integration and Behaviour 1
  - Location - CG04
  - Chaired by Ivor Rhodes

### Travel by coach back to City University London (the University building will be closed)
## Tuesday 10 September 2013: Day 2

### 09:00
**Keynote Session 2**  
Chaired by Ahmed Kovacevic  
Location - Oliver Thompson Lecture Theatre

- **Sliding Vane Rotary Compressor technology and energy saving**  
  Roberto Cipollone, University of L’Aquila, Italy

- **Micro Channel Heat Exchangers and Compressors**  
  Pega Hrnjak, University of Illinois, United States of America

### 10:00
**Presentation Session**

<table>
<thead>
<tr>
<th>Session 9 – Reciprocating compressors</th>
<th>Session 10 – Technology Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location - OTLT</td>
<td>Location - CG04</td>
</tr>
<tr>
<td>Chaired by Cesar J Deschamps</td>
<td>Chaired by Melanie Rigby</td>
</tr>
</tbody>
</table>

- **Survey of factors influencing reciprocating compressor efficiencies and discharge gas temperatures**  
  Erich Heinz Machu, Austria

- **Generating Grinding in Rotor Production – KAPP Rotor Grinding Machine RX 120**  
  Holger Staub, Hans-Jürgen Heyder, Axel Köhler, Susanne Reinhardt, Friedrich Wölfel, KAPP Werkzeugmaschinen GmbH, Germany

- **An Investigation of the Heat Transfer Characteristics between the components of the Hermetic Reciprocating Compressors**  
  Ahmet Refik Ozdemir¹, Emre Oguz¹, Seyhan Onbaslioglu²  
  ¹ARCELİK A.S., Turkey; ²ITT Mechanical Faculty, Turkey

- **Study of Aerodynamic Noise in Hermetic Refrigerator Compressor**  
  Shuru Lin, Zhilong He, Jun Guo, Xi’an Jiaotong University, China

### 11:15
**Coffee break - Oliver Thompson Foyer**

### 11:40
**Presentation Session**

<table>
<thead>
<tr>
<th>Session 11 – Screw compressors 2</th>
<th>Session 12 – Valves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location - OTLT</td>
<td>Location - CG04</td>
</tr>
<tr>
<td>Chaired by Graeme Cook</td>
<td>Chaired by Christopher S. Holmes</td>
</tr>
</tbody>
</table>

- **Experimental validation of a geometry model for twin screw machines**  
  David Buckney¹,², Ahmed Kovacevic², Nikola Stosic²  
  ¹Howden Compressors, United Kingdom; ²Centre for Positive Displacement Compressor Technology, City University, UK

- **Thermodynamic simulation of multi-stage screw compressors using chamber-based screw model**  
  Jan Hauser, Michael Beinert, Sven Herlemann, GHH RAND Schraubenkompressoren GmbH, Germany

- **Effect of variable volume index on performance of single screw compressor**  
  Masanori Masuda, Hiromichi Ueno, Takashi Inoue, Kazutaka Hori, Md. Anwar Hossain, Daikin Industries, Ltd., Japan

- **Investigations of Deformation Failure of the Slide Valve in Single Screw Refrigeration Compressors**  
  Feilong Liu, Zengli Wang, Weifeng Wu, Quanke Feng, Xi’an Jiaotong University, China

### 13:10
**Lunch break - Oliver Thompson Foyer**

### 13:45
**Poster Session 2 - Oliver Thompson Foyer**

- **Centrifugal compressor efficiency types and rational application**  
  Yuri B. Galerkin, Alexandr A. Drozdov, Kristina V.Soldatova, TU Saint-Petersburg, Russia

- **Optimization of Integrated Energy Process in China Industrial Compressed Air System**  
  Tianqi Ma¹, Zhenyuan Jia², Hongqi Li¹, Xingxing Zhang³, Xudong Zhao³,  
  ¹Beijing University of Technology, China; ²Beijing Huayuanliting Heating Development Co., Ltd, China; ³University of Hull, UK

- **Shape Optimization of a Radial Compressor Impeller**  
  Smail Khalfallah¹, Adel Ghenaiet²  
  ¹Laboratory of Thermal Power Systems, Algeria; ²Department of Energetic, USTHB, Algeria

- **Optimization of Integrated Energy Process in China Industrial Compressed Air System**  
  Tianqi Ma¹, Zhenyuan Jia², Hongqi Li¹, Xingxing Zhang³, Xudong Zhao³,  
  ¹Beijing University of Technology, China; ²Beijing Huayuanliting Heating Development Co., Ltd, China; ³University of Hull, UK

- **A Comprehensive Simulation Model of the Dynamics of the Revolving Vane Machine**  
  Alison Subiantoro¹, Kim Tiow Ooi²  
  ¹Technische Universität München (TUM CREATE), Singapore; ²School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

---

**Location**
- **Session 11** - Keynote Session 2  
  Chaired by Ahmed Kovacevic  
  Location - Oliver Thompson Lecture Theatre

- **Session 12** - Poster Session 2  
  Location - Oliver Thompson Foyer

**Session 9 – Reciprocating compressors**
- Location - OTLT  
  Chaired by Cesar J Deschamps

**Session 10 – Technology Development**
- Location - CG04  
  Chaired by Melanie Rigby

**Session 11 – Screw compressors 2**
- Location - OTLT  
  Chaired by Graeme Cook

**Session 12 – Valves**
- Location - CG04  
  Chaired by Christopher S. Holmes

**Historic review of attempts to model valve dynamics**
- Erich Heinz Machu, Austria

**Numerical analysis of seat impact of reed type valves**
- The improved valve assembly of swash plate compressor for vehicle air conditioning system
  - Geonho Lee¹, Taejin Lee², Seungwon Lee³  
  ¹Doowon Technical College, South Korea; ²Doowon Technical Research Center, DWHI, South Korea

**Investigations of Deformation Failure of the Slide Valve in Single Screw Refrigeration Compressors**
- Feilong Liu, Zengli Wang, Weifeng Wu, Quanke Feng, Xi’an Jiaotong University, China

**Dynamic analysis of compressed air energy storage system**
- Qichao Yang, Yuan Yang Zhao, Liansheng Li, Zegang Qian, Hefei General Machinery Research Institute, China

---

**Keynote Session 2**
- Sliding Vane Rotary Compressor technology and energy saving  
  Roberto Cipollone, University of L’Aquila, Italy

**Micro Channel Heat Exchangers and Compressors**
- Pega Hrnjak, University of Illinois, United States of America

**Presentation Session**
- Survey of factors influencing reciprocating compressor efficiencies and discharge gas temperatures  
  Erich Heinz Machu, Austria

**Generating Grinding in Rotor Production – KAPP Rotor Grinding Machine RX 120**
- Holger Staub, Hans-Jürgen Heyder, Axel Köhler, Susanne Reinhardt, Friedrich Wölfel, KAPP Werkzeugmaschinen GmbH, Germany

**An Investigation of the Heat Transfer Characteristics between the components of the Hermetic Reciprocating Compressors**
- Ahmet Refik Ozdemir¹, Emre Oguz¹, Seyhan Onbaslioglu²  
  ¹ARCELİK A.S., Turkey; ²ITT Mechanical Faculty, Turkey

**Study of Aerodynamic Noise in Hermetic Refrigerator Compressor**
- Shuru Lin, Zhilong He, Jun Guo, Xi’an Jiaotong University, China

**Keynote Session 2**
- Sliding Vane Rotary Compressor technology and energy saving  
  Roberto Cipollone, University of L’Aquila, Italy

**Micro Channel Heat Exchangers and Compressors**
- Pega Hrnjak, University of Illinois, United States of America

**Presentation Session**
- Survey of factors influencing reciprocating compressor efficiencies and discharge gas temperatures  
  Erich Heinz Machu, Austria

**Generating Grinding in Rotor Production – KAPP Rotor Grinding Machine RX 120**
- Holger Staub, Hans-Jürgen Heyder, Axel Köhler, Susanne Reinhardt, Friedrich Wölfel, KAPP Werkzeugmaschinen GmbH, Germany

**An Investigation of the Heat Transfer Characteristics between the components of the Hermetic Reciprocating Compressors**
- Ahmet Refik Ozdemir¹, Emre Oguz¹, Seyhan Onbaslioglu²  
  ¹ARCELİK A.S., Turkey; ²ITT Mechanical Faculty, Turkey

**Study of Aerodynamic Noise in Hermetic Refrigerator Compressor**
- Shuru Lin, Zhilong He, Jun Guo, Xi’an Jiaotong University, China
<table>
<thead>
<tr>
<th>14:15</th>
<th>Presentation Session</th>
</tr>
</thead>
</table>
| **Session 13 – Modelling**  
Location - OTLT  
Chaired by Andreas Brummer | **Session 14 – Energy efficiency and carbon footprint**  
Location - CG04  
Chaired by Guy Hundy |
| A new dynamic heat pump simulation model with variable speed compressors under frosting conditions  
Noma Park, Shin Jeongseob, Bai Kyung Chung, LG Electronics, INC., South Korea | Compressor and System Energy Efficiency Improvements through Lubricant Optimization  
Joseph Karnaz, CPI Engineering, United States of America |
| Developing Simulation Tools for design of Low Charge Vapour Compression Refrigeration Systems  
Guoliang Ding, Tingting Wang, Jingdan Gao, Yongxin Zheng, Yifeng Gao, Ji Song  
1Shanghai Jiao Tong University, China; 2International Copper Association Shanghai Office, Shanghai, China | Energy Saving in Sliding Vane Rotary Compressors  
Roberto Cipollone, Gianluca Valenti, Giuseppe Bianchi, Stefano Murgia, Giulio Contaldi  
1Ing. Enea Mattei SpA, Italy; 2University Aquila; 3Politecnico di Milano |
| Modeling Of Small Turbocharger Compressors’ Performance Curves  
Kristina Soldatova, Joerg R. Seume, Torsten kleine Sextro  
1TU Saint-Petersburg Russia, Russian Federation; 2Institute of Turbo machine and Fluid Dynamics TU Hannover, Germany | Energy Recovery using Sliding Vane Rotary Expanders  
Roberto Cipollone, Giuseppe Bianchi, Stefano Murgia, Giulio Contaldi  
1Ing. Enea Mattei SpA, Italy; 2University Aquila |

| 15:30 | Coffee break - Oliver Thompson Foyer |

<table>
<thead>
<tr>
<th>16:00</th>
<th>Presentation Session</th>
</tr>
</thead>
</table>
| **Session 15 – Novel compressors**  
Location - OTLT  
Chaired by Eckhard A. Groll | **Session 16 – CFD in Turbo Machines**  
Location - CG04  
Chaired by Amin Haghjoo |
| Analysis and Development of a New Compressor Device Based on the New Finned Piston  
Mahbod Heidari, Alfred Rufer, LEI, EPFL, Switzerland | CFD Analyses of a Radial Inflow Turbine  
Mahfoudh Cerdoun, Adel Ghenaïet  
1Laboratory of Thermal Power Systems, Algeria; 2Department of Energetic, University of Science and Technology, Algeria |
| Oil Flooded Screw Vacuum Pumps with a Novel Flexible Discharge Port Design  
Yan Tang, Kaishan Compressor, China | Numerical and experimental investigation of the efficiency of vaned diffuser of centrifugal compressor  
Oleksii Obukhov, Andrey Smirnov, Oleksandr Gysak  
1Sumy Frunze NPO, Ukraine; 2Sumy State University |
| Spool Compressor Tip Seal Design Considerations  
Bradshaw Craig, Torad Engineering, United States of America | Simulation and Validation of the Compressor Stage of a Turbocharger Using OpenFOAM  
Martin Heinrich, Rüdiger Schwarze, TU Bergakademie Freiberg, Germany |

<table>
<thead>
<tr>
<th>17:15</th>
<th>Closing Remarks</th>
</tr>
</thead>
</table>
| Location - Oliver Thompson Lecture Theatre  
Professor Ian K Smith, City University London | |

| 17:30 | Close of Conference |

<table>
<thead>
<tr>
<th>Organising Committee</th>
</tr>
</thead>
</table>
| Chairman, Ian Smith, City University London  
Amelia Brunt, Institution of Mechanical Engineers  
Graeme Cock, Howden Compressors  
Guy Hundy, Aleph Zero  
Ahmed Kovacevic, City University London  
Ivor Rhodes, ACE Cranfield  
Melanie Rigby, Gardner Denver/CompAir  
Nikola Stosic, City University London  
Louise Gordon, City University London  
Emma J Leaver, City University London |

<table>
<thead>
<tr>
<th>International Organising Committee</th>
</tr>
</thead>
</table>
| Ian Bennett, Shell Global Solutions, UK  
Cesar Deschamps, Federal University of Santa Catarina, Brazil  
Mitsuhiro Fukuta, Shizuoka University, Japan  
Yuri Galerkin, St Petersburg University, Russia  
Amin Haghjoo, Ingersoll Rand, Germany  
Liansheng Li, Xi’an Jiaotong University, China  
Erich Machu, Consultant, Austria  
Kim Tiow Ooi, Nanyang Technology University, Singapore  
Jack Sauls, Ingersoll Rand/Trane USA |
# 8th International Conference on Compressors and their Systems
## Short Course/Forum: CFD in Positive Displacement Machines
### 7-8 September 2013 – City University London

**Saturday 7 September 2013: Day 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chair(s)</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td>Welcome AG03</td>
<td>Chaired by Ahmed Kovacevic</td>
<td></td>
</tr>
<tr>
<td>09:05</td>
<td><strong>Session 1 – General CFD AG03</strong></td>
<td>Chaired by Ahmed Kovacevic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General CFD with emphasis on modelling positive displacement machines, review of STAR-CCM+</td>
<td>Milovan Peric, CD-adapco, Germany</td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td><strong>Coffee Break AG01</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Session 2 - Grid Generation Theory and Practice AG03</strong></td>
<td>Chaired by Vlado Przulj</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grid generation and CFD analysis in Screw Compressors</td>
<td>Ahmed Kovacevic, City University London, United Kingdom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ansa in CFD Pre-processing and Hybrid Mesh Approach in Screw Compressors Modelling</td>
<td>Konstantinos Haliskos, Beta CAE Systems, Greece</td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td><strong>Lunch break AG01</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:30</td>
<td><strong>Session 3 - CFD codes for Positive Displacement Machines AG03</strong></td>
<td>Chaired by Jack Sauls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use of ANSYS CFX and Fluent for analysis of Positive Displacement Machines</td>
<td>Mike Chudiak, ANSYS, United Kingdom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-cylinder simulations in internal combustion engines using VECTIS software</td>
<td>Vlado Przulj, Nick Tiney, Ricardo, United Kingdom</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td><strong>Coffee Break AG01</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:15</td>
<td><strong>Forum 1 - CFD and Grid Generation for Positive Displacement Machines AG03</strong></td>
<td>Chaired by Ahmed Kovacevic</td>
<td></td>
</tr>
<tr>
<td>17:00</td>
<td><strong>Close of day 1</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sunday 8 September 2013: Day 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Chair(s)</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:30</td>
<td><strong>Session 4 - Application of CFD in Positive Displacement Machines AG03</strong></td>
<td>Chaired by Konstantinos Haliskos</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PumpLinx: Virtual Testing of Fluid Pumps, Motors, Compressors, Valves and Systems</td>
<td>Yu Jiang, Sam Lowry, Simerics, United States of America</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Application of CFD in piston compressors</td>
<td>Cesar J Deschamps, Federal University of Santa Catarina, Brazil</td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Lunch break AG01</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15</td>
<td><strong>Session 5 – Industrial Application of CFD in Screw Compressors</strong></td>
<td>Chaired by Cesar J Deschamps</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CFD in Refrigeration Screw Compressor Design</td>
<td>Jack Sauls, Scott Branch, IngersollRand, United States of America</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Industrial application of CFD in screw compressors in Howden</td>
<td>Maria Pascu, Howden Compressors Ltd, United Kingdom</td>
<td></td>
</tr>
<tr>
<td>12:45</td>
<td><strong>Lunch break AG01</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td><strong>Session 6 – Developments of CFD for Positive Displacement Compressors AG03</strong></td>
<td>Chaired by Milovan Peric</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recent developments in grid generation for Screw Compressors</td>
<td>Sham Rane, Ahmed Kovacevic, City University, United Kingdom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Opportunities for modelling multiphase flows in positive displacement machines</td>
<td>Manolis Gavaises, City University London, United Kingdom</td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td><strong>Coffee Break AG01</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:45</td>
<td><strong>Forum 2: Future of CFD for Positive Displacement Machines AG03</strong></td>
<td>Chaired by Milovan Peric</td>
<td></td>
</tr>
<tr>
<td>16:45</td>
<td><strong>Close of Short Course</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td><strong>Welcome Reception and Registration for 8th International Conference on Compressors and Their Systems</strong></td>
<td>Oliver Thompson Foyer, Northampton Square site of City University London</td>
<td></td>
</tr>
</tbody>
</table>