Update to TRC (May 2015)
**Outreach**

**Turbomachinery & Pump Symposia (Pump & Turbo)**
- Annual event
- Houston, TX
- Approx. 6,200 attendees
- 300+ companies
- Turbo 1971 (44th), Pump 1984 (31)

**Middle East Turbomachinery Symposium (METS)**
- Biennial event
- Doha, Qatar
- Approx. 1,000 attendees
- 60+ companies
- Began 2011 (3rd in 2015)

**Continuing Education Stand-alone Short Courses**
- 4-5 courses annually
- 60+ practicing engineers.
- Houston, TX

**Turbomachinery Research Consortium (TRC)**
- 40+ companies
- $25K annual dues
- 15-20 research projects funded annually

**Faculty & Graduate Student Involvement**
- 6-8 ME faculty
- 1 Aero faculty
- Approx. 90 graduate students

**COMING 2016**: Asia Turbomachinery & Pump Symposium (Singapore) – Marina Bay Sands Hotel.
Why a Turbomachinery Symposium?

- **Professional Development and Education** – Provide continuing education to practicing engineers in energy, water, environment sectors, and aerospace industries.

- **Technology transfer and peer networking** – A venue where practicing engineers and industrial R&D in Asia can meet and discuss problems and solutions for Asian needs - large cities (power, water, transportation), oil and gas refining, extreme engineering, etc.

- **Facilitate meetings** – Provide an environment where clients can meet with manufacturers and service industries to discuss their company’s needs.

- **Partnerships/Promotions** – Partner with large equipment OEMS to promote, use and improve products.

- **Outreach** to other nations: China, India, Australia, Japan, Taiwan Korea, etc.

- **Research** – provide opportunities to further research with Universities in the Far East (Singapore, Malaysia, India, Taiwan, etc).
An advisory committee selects a program consisting of lectures, tutorials, discussion groups and case studies. Topics related to the turbomachinery & pump industries.

Structured as the Middle East Turbomachinery Symposium (METS). Biennial event held opposite years from METS.

Schedule – 2 ½ days, with full-day short courses offered the day before the symposium opens. Technical sessions and the exhibits do not overlap, enabling attendees to benefit from both symposium aspects.

Exhibit hall features company booths, full-size equipment, product demonstrations, and a presentation stage.
Why South East Asia?

The pace of development is greatest in Asia: the place where the future happens today!

This is the growth century for China, Australia, India, Malaysia, Indonesia, etc.
Why Singapore?

• **Industry** – has a flourishing turbomachinery industry, including service and repair, engineering & design & manufacturing.
  - Energy
  - Aerospace
  - Marine and Offshore Engineering
  - Water and Environment

• **Education** – hosts world-ranked universities and an increasing number of R&D facilities (government and private).

• **Destination** – Singapore is a top business, financial and vacation destination.
The AC provides both guidance and assistance in making the Symposium a success.

AC members have the active support of their employers to provide travel and time support to attend organizational and planning meetings, and to attend the symposium in the Spring of every other year.
# Advisory Committee

## OEMS, End Users and Services

<table>
<thead>
<tr>
<th>Company Name</th>
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<tbody>
<tr>
<td>Man Diesel &amp; Turbo Schweiz</td>
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<tr>
<td>GE Oil &amp; Gas</td>
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<td>Mitsubishi Heavy Industries</td>
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<td>Dresser Rand</td>
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<td>Solar Turbines</td>
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<td>Elliot-Ebara Group</td>
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<td>Rolls-Royce Energy Singapore</td>
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<td>Samsung Techwin</td>
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<td>Hitachi Ltd.</td>
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<td>Dongyang Chemical Pump Co., Ltd</td>
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<td>CRC Pumps</td>
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<td>Flowserve</td>
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<td>Eagle Burgmann</td>
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<td>Kop-Flex</td>
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<td>Altra Energy Couplings</td>
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<td>Hunan Sund Ind &amp; Tech (China)</td>
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<td>Shell Eastern Petroleum (S)</td>
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<td>Exxon-Mobil R&amp;E (S)</td>
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<td>Impex</td>
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<td>Chevron</td>
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<td>Qatar Petroleum</td>
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<td>Singapore Refining Co. Ltd.</td>
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<td>HMEL (India)</td>
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<td>Conoco Philips</td>
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<td>Singapore Chamber of Commerce &amp; Industry in China</td>
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<td>International Oil &amp; Gas Consultants (S)</td>
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<tr>
<td>Southwest Research Institute</td>
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<tr>
<td>BRG Machinery Consulting</td>
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<tr>
<td>Lloyds’ Register Global Technology</td>
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Technical content

Short Course: a full-day training session presented on the first day of the Symposium.

Lecture: a presentation of a technical paper detailing cutting-edge, emerging technology.

Tutorial: mini short course/workshop, a 90-minute teaching process.

Discussion Group: a forum in which leaders and delegates participate together to share topical problems, solutions, and best practices.

Case Studies: describes successful implementation of established technology to solve a real-world problem.

Final manuscripts review on Aug 18, 2015

<table>
<thead>
<tr>
<th></th>
<th>Abstracts received</th>
<th>Invited March 17</th>
<th>Schedule</th>
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<tbody>
<tr>
<td>Lectures (45’)</td>
<td>53</td>
<td>21</td>
<td>24</td>
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<tr>
<td>Tutorials (90’)</td>
<td>35</td>
<td>30</td>
<td>12</td>
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<td>Case Studies (30’)</td>
<td>52</td>
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<tr>
<td>Short courses</td>
<td>12</td>
<td>10</td>
<td>8</td>
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<tr>
<td>Discussion Groups</td>
<td>9</td>
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<tr>
<td></td>
<td>152</td>
<td>105</td>
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</tbody>
</table>

Centrifugal and Reciprocating Compressor Design, Operation, and Maintenance

Effects of Radial and Axial Load Forces in Rotating Machinery

Stability and Efficiency of Turbines and Compressors

Trends in Mechanical Seals, Air Foil Bearings, and Wet and Dry Gas Seals

Diagnostics and Solutions associated with Pump Vibration and Cavitation

Magnetic, Mechanical, and Fluid Bearing Design, Operation, and Maintenance
Educational Partners

National University of Singapore

Nanyang Technological University - Engineering

Cranfield University (UK)

Korea Machinery Association (KRMEA)
Up to 100
3x3 m² booths
USD 4.5k per shell scheme
USD 4.0k per space only
*plus local taxes if applicable

9 companies and 15 booths already reserved
## Registration cost

<table>
<thead>
<tr>
<th></th>
<th>Turbomachinery &amp; Pump Symposia Houston</th>
<th>Middle East Turbomachinery Symposium</th>
<th>Asia Turbomachinery &amp; Pump Symposia</th>
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<tbody>
<tr>
<td><strong>Symposia Only</strong></td>
<td>USD 1000</td>
<td>USD 1100</td>
<td>USD 1100</td>
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<tr>
<td><strong>Symposia + Short Course</strong></td>
<td>USD 1350</td>
<td>USD 1400</td>
<td>USD 1400</td>
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<tr>
<td><strong>Short Course Only</strong></td>
<td>USD 750</td>
<td>USD 600</td>
<td>USD 750</td>
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<tr>
<td><strong>Symposia Day Pass</strong></td>
<td>USD 475 - Tue, Wed USD 250 Thur</td>
<td>USD 500 Mon, Tue USD 300 Wed</td>
<td>USD 500 Mon, Tue USD 300 Wed</td>
</tr>
</tbody>
</table>

**Free for students and faculty**
Sponsorship Opportunities

- Titanium Sponsorship (2 Available) USD 150k
- Platinum Sponsorship (2 Available) USD 100k
- Gold Sponsorship (2 Available) USD 75k
- Silver Sponsorship (3 Available) USD 50k
- Bronze Sponsorship (3 Available) USD 35k
- Conference Gala Dinner Sponsorship USD 25k
- Welcome Reception Sponsorship USD 20k
- Delegate Bags Exclusive Sponsorship USD 20k
- Conference Program Sponsorship USD 10k
- Conference Coffee Breaks on Day 1 or 2 or 3 Sponsorship USD 10k
- Stationery (Pens and Note Pads) Sponsorship USD 9k
- Badge/Lanyards Exclusive Sponsorship USD 7.5k – CURRENTLY PENDING SPONSOR
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HOUSTON, TEXAS | SEPTEMBER 14 – 17 2015
GEORGE R. BROWN CONVENTION CENTER

ASIA
TURBOMACHINERY & PUMP SYMPOSIUM
SINGAPORE | 22 – 25 FEBRUARY 2016
MARINA BAY SANDS

MIDDLE EAST
TURBOMACHINERY SYMPOSIUM
DOHA, QATAR | EARLY 2017
SHERATON DOHA RESORT & CONFERENCE HOTEL
Thanks!

Visit: http://atps.tamu.edu

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