



Professional Continuing Education Programs

EXECUTIVE SUMMARY

April 2018

INTRODUCTION

The Turbomachinery Laboratory (TL) is a research center operating under the auspices of the Texas A&M Engineering Experiment Station (TEES) in College Station, Texas. TEES was established in 1914 with a mission to undertake research that would produce answers to urban difficulties, thus enhancing quality of life. For more than 100 years, TEES has performed groundbreaking engineering research and developed technology in areas of strategic importance to the economy and quality of life. Its continuing mission is to 1) perform quality research to address society's needs, 2) support workforce development through professional continuing education, and 3) develop and transfer technology to industry.

TL is a leader in these endeavors and has developed an internationally-renowned professional continuing education program highlighted by its flagship event, the Turbomachinery and International Pump Users Symposia held in Houston, Texas. Built on a 47 year history of success, this annual event features a world-class technical program combined with an international exhibition complete with full-size equipment and hundreds of leading companies. Leading the TEES mission of extending its leadership position globally, TL has presented three biennial symposia in Doha, Qatar (METS - Middle East Turbomachinery Symposium, now on hiatus), and two biennial symposia in Singapore (ATPS - Asia Turbomachinery and Pump Symposium in 2016 and 2018.) In addition to symposia, TL also offers multi-day short courses in various international venues, bringing the latest in best practices to engineers and technicians in rotating equipment and related fields.

HISTORY

The Turbomachinery Symposium was first organized in 1972 to directly address urgent issues driven by rapid expansion of ethylene plants in the Houston, Texas area. Increases in horsepower and pressure requirements in steam turbines resulted in ongoing failures and instability in plants resulting in billion-dollar-plus annual losses. The need to solve these problems prompted several industry leaders to collaborate on an effort envisioning a conference in which users and manufacturers could discuss the state of the business, systemic problems, and future solutions. Two of the leaders in this effort, Charlie Jackson with Monsanto, and Ed Nelson with Amoco, had close ties to Texas A&M University, and therefore negotiated a partnership with the world-renowned research and teaching institution that has resulted in a successful ongoing program under TL leadership.

The vision of creating a continuing education program driven by industry, for industry, was a novel approach and has secured the success of the TL symposia through longtime industry support. Advisory committees originally consisting of only end users, later adding manufacturers and consultants, were established to develop a sound technical program through peer review process. The object of the symposium was clearly stated in its articles of organization: *This Symposium shall provide an opportunity for interested persons to learn the applications and principles of various types of turbomachinery and related subjects, to enable them to keep abreast of the latest developments in this field, and to provide a forum for the exchange of ideas. The Symposium shall be on a practical engineering level.* This directive has been followed at METS and ATPS as well.

A second symposium, the International Pump Users Symposium was later organized to address specific issues within pump-related industries driven by Clean Air act regulations in the United States necessitating improvements in pump design and operation. Now in its 32nd year, the Pump Symposium was combined in 2011 with the Turbomachinery Symposium to form a single event, the Turbomachinery and Pump Symposia (TPS) held at the George R. Brown Convention Center in Houston. TL additionally hosts multi-day short courses in Houston, Texas in January and March of each year, and in Singapore and Doha on an adhoc basis.

TPS, METS, and ATPS are the few, if not only, conferences where end-users have primary influence on technical content where most other turbomachinery related events are manufacturing or academically driven. Strong participation and direction from advisory committee members continues to be the primary reason for perennial success with direct industry relevance of the TL symposia.

GROWTH

The symposia programs have continued to grow through industry participation and boast strong international recognition as the premier conferences for rotating equipment engineers. A signature feature of the TPS symposia is its world-class exhibit hall with participation from global leaders in turbomachinery and pump applications. TPS has demonstrating strong annual growth increasing from a handful of exhibitors in early events to 202 exhibiting companies in 2004 and expanding to over 350 exhibiting

companies in 2017. The number of booth spaces occupied by these companies has nearly doubled since 2004 from 364 10 foot square spaces to 720.

Income derived from exhibitor fees and attendee registrations go toward maintaining and expanding the physical plant of the Turbomachinery Laboratory in College Station and funding operations where ongoing industry-sponsored and student-led research continues to support the TEES mission of technology development and commercialization.

TPS hosted more than 4,500 participants from 48 countries in 2017 playing a major role in the TL mission of workforce development. The quality technical sessions that include short courses, lectures, tutorials, case studies, and discussion groups, are only a part of the educational opportunities. Equipment and best-practice demonstrations from leading global companies on the exhibit floor demonstrate an invaluable transfer of knowledge, along with face-to-face networking opportunities during the entire event.

Lectures, tutorials and case studies published as part of the TPS proceedings are cited frequently in open literature. Practicing engineers and researchers find the TPS papers have immediate applicability and lasting relevance in their respective fields. In the last decade, TPS papers on Operational Modal Analysis for example have become the standards for further work. All symposia publications are available free to the public six months after an event thus reaching a wide audience.

ASIA EXPANSION

The inaugural Asia Turbomachinery and Pump Symposium (ATPS), held in Singapore in February 2016, launched an initiative to deliver quality professional education programs to the Asia region. This program was modeled on TPS and began with the recruitment of a distinguished advisory committee representing rotating equipment end users, developers, manufacturers, and researchers from the region and internationally, including representation from the long-standing Turbomachinery Symposium advisory committee. This ensures that the same high standard of quality programming will continue to carry over to this new event in a region hungry for educational opportunities.

Singapore was chosen for its central location in the Asia region with ready access to areas of high growth and development including Australia, India, Malaysia, Korea, Japan, and China. Singapore triumphs with a business-friendly culture that includes strong government support for continuing education programs.

ATPS 2016 was held at the Marina Bay Sands Conference Center in Singapore followed by ATPS 2018 at the Suntec Convention center. The 2018 program hosted more than 670 delegates from 30 countries and exhibits representing 30 companies. Overall success of this program was aided by partnerships with leading universities in Singapore, Nanyang Technological University (NTU) and the National University of Singapore (NUS), as well as support from the Singapore Tourism Board. University Teknologi Malaysia (UTM) joined ATPS as an academic partner in 2018, and Mitsubishi Heavy Industries was a primary sponsor for both events.

TL also enjoys regional support of ATPS from the Korean Rotating Machinery Engineers Association, Institution of Engineers Singapore, and Institution of Engineers Malaysia. TL continues to solicit additional industry sponsorship, professional association involvement, and educational institution participation from numerous entities in the Asian region. ATPS is primarily aimed toward power, oil and gas, water production and treatment, petrochemical, marine and offshore engineering, and the aerospace industry whose engineers, technicians, and managers seek opportunities in addressing ongoing issues with reliability and maintenance of rotating equipment, and to offer avenues for discussion of future trends in these industries.

Like TPS, ATPS also offers the same knowledge sharing experiences on the exhibit floor from global leaders in their fields. The technical program guided by the ATPS advisory committee ensures program content that is relevant and up-to-date on current industry practices and trends maintaining the same structure in technical programs from TPS utilizing short courses, lectures, tutorials, case studies, and discussion groups.

CONTACT

For additional information on any TL programs, contact Greg Gammon, Director of Operations. ggammon@tamu.edu

SOURCES

TPS History – Michael Drosjack, Ph.D. Turbo Advisory Committee Emeritus Member.

TEES - <http://tees.tamu.edu/> TEES Strategic Plan - <http://tees.tamu.edu/about/tees-strategic-plan/>

Turbomachinery Laboratory - <http://turbolab.tamu.edu/>

TPS - <http://tps.tamu.edu/> ATPS - <http://atps.tamu.edu/>