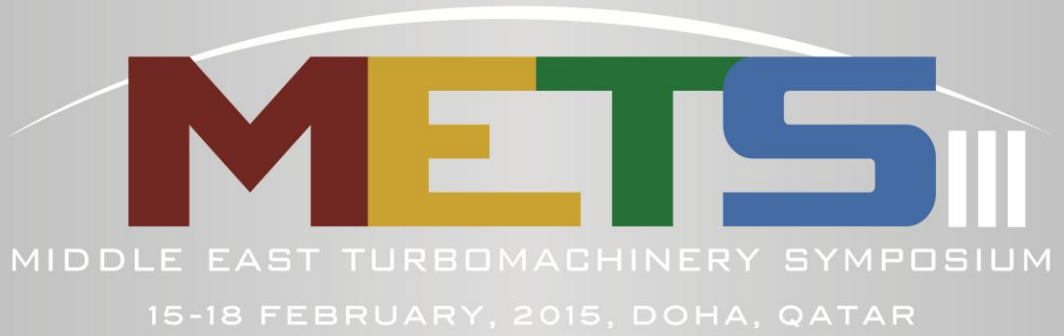

Pump Cavitation – Physics, Prediction, Control, Troubleshooting

Short Course

Instructors: Bruno Schiavello & Frank Visser

FLOWSERVE

TEXAS A&M UNIVERSITY

TEES TURBOMACHINERY LABORATORY
TEXAS A&M ENGINEERING EXPERIMENT STATION

Agenda

- Round of Introduction
- Session 1:
  - Part A: Introduction to Cavitation
  - Part B: Net Positive Suction Head
- Coffee Break
- Session 2:
  - Part A: Further Insights & Particulars
  - Part B: CFD of Cavitating Flows
- Lunch Break
- Session 3:
  - Cavitation Control
- Coffee Break
- Session 4:
  - Cavitation Failure Analysis (Methodology / Case Studies)

Tutorial Paper: http://turbolab.tamu.edu/proc/pumpproc/P25/P25-Special1.pdf

Biography – Bruno Schiavello

Bruno Schiavello is Director for Fluid Dynamics at Flowserve, Advanced Technology, Pumps & Drives Department, in Bethlehem, Pennsylvania, and previously served in the same position with Ingersoll Dresser Pump Company, Phillipsburg, New Jersey, since 1993. He started in 1975 with the R&D Department of Worthington Nord (Italy), joined in 1982 the Central R&D of Worthington Pumps, USA, then Dresser Pump Division.

Mr. Schiavello was co-winner of the H. Worthington European Technical Award in 1979. He has written several papers and lectured at seminars in the area of pump recirculation, cavitation, and two-phase flow. He is a member of ASME, and former Associate Editor for ASME Journal of Fluids Engineering. He has received the ASME 2006 Fluid Machinery Design Award, and has been Co-Lead Organizer of ASME Pumping Machinery Symposium in 2005, 2009, and 2011. He has served on the International Pump Users Symposium Advisory Committee since 1983.

Mr. Schiavello received a B.S. degree (Mechanical Engineering, 1974) from the University of Rome, and a M.S. degree (Fluid Dynamics, 1975) from Von Karman Institute for Fluid Dynamics, Rhode St. Genese, Belgium.

Biography – Frank Visser

Frank Visser currently holds the position of Engineering Specialist Hydraulics with Flowserve, Services & Solutions Engineering, in Etten-Leur, The Netherlands. He joined Flowserve in 1995 (at that time, BW/IP International), where he has held several positions in research, development, and (product) engineering. His key expertise and interests relate to fluid mechanics, CFD and thermodynamics of (centrifugal) pumps and hydraulic turbines, on which he has authored & co-authored multiple technical papers in journals and proceedings.

Dr. Visser obtained a B.S. degree (Mechanical Engineering, 1985) from Technical College Alkmaar, The Netherlands, and an M.S. degree (Mechanical Engineering, 1991) and Ph.D. degree (Technical Sciences, 1996) from the University of Twente, Enschede, The Netherlands. He is a member of the Royal Institution of Engineers in the Netherlands, a member of ASME, a member of the Industrial Board for the J.M. Burgerscentrum, Research School for Fluid Mechanics, and Associate Editor for ASME Journal of Fluids Engineering.