SHORT COURSE T5
API 684 – TORSIONAL ASPECTS

Chris D. Kulhanek is a Research Engineer in the Fluids & Machinery Engineering Department at Southwest Research Institute. He is responsible for investigating problems with fluid-process machinery and associated plant systems. His interests include lateral and torsional rotordynamics, bearings and seals, finite element analysis, and mechanical design. Mr. Kulhanek performs third-party design audits, troubleshooting, and root cause failure analysis of turbomachinery and fluid systems. He has authored technical papers in the area of fluid film bearings and torsional vibration. Mr. Kulhanek received his B.S. and M.S. degrees (Mechanical Engineering) from Texas A&M University.

Brian Pettinato is Manager of Product Development at Elliott Group in Jeannette, Pennsylvania. He has been with Elliott Group since 1995. His areas of expertise include lateral and torsional rotordynamics, vibration analysis, and the testing and evaluation of fluid film journal bearings. He currently manages a group responsible for compressor and expander technology development. Prior to joining Elliott Group, Mr. Pettinato worked as a project engineer for an aftermarket bearing manufacturer. Mr. Pettinato received his B.S. (Mechanical Engineering, 1989) and M.S. (Mechanical Engineering, 1992) degrees from the University of Virginia. He has coauthored over ten technical papers, and holds one U.S. patent. He is a registered Professional Engineer in the State of Pennsylvania, and is a member of ASME, STLE, and the API 684 rotordynamics task force. He joined the TAC in September, 2012.

Malcolm Leader is the owner of Applied Machinery Dynamics Company. After working for Monsanto Company in Texas City for 9 years, Mr. Leader has run his own turbomachinery consulting business for 24 years. With a focus on providing practical solutions, he specializes in lateral rotordynamics including bearing and seal optimizations as well as steady state and transient torsional analyses. He has analyzed and improved the stability and reliability of over 176 rotating equipment trains. He also offers field diag- nostics of machinery problems and advanced vibration testing and analysis. Specialized training courses are also offered. Mr. Leader received his BSME in 1977 and his MSME in 1978 from the University of Virginia.

Mark A. Corbo is the President and Chief Engineer of No Bull Engineering PLLC, a high technology engineering/ consulting firm located in Schenectady, NY. He is responsible for providing rotating equipment consulting services in the forms of engineering design and analysis, troubleshooting, and third-party design audits to various clients within the turbomachinery industry. Prior to beginning his consulting career at Mechanical Technology Incorporated (MTI) in 1995, he spent 12 years in the aerospace industry designing pumps, valves, and controls for gas turbine engines. His fields of expertise include rotordynamics, torsional vibration, fluid-film journal and thrust bearings, hydraulic and pneumatic flow analysis, computational fluid dynamics, finite element analysis, and mechanical design. Mr. Corbo has B.S. and M.S. degrees (Mechanical Engineering) from Rensselaer Polytechnic Institute. He is a registered Professional Engineer in the State of New York and is a member of ASME, STLE, and The Vibration Institute. Over the course of his 30 year career, he has authored more than a dozen technical publications, including one that won the “Best Case Study” award at Bently Nevada’s ISCORMA rotordynamics conference in 2001. He is currently serving as the Chair of the Torsional Vibration Section on the Task Force for the API 684 Rotordynamics Tutorial.