Institute of Fluid Machinery and Engineering

Tsinghua University

Research within Hydraulic Turbines at LTU, Sweden

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Abstract

Hydropower stands for about 20% of the electricity production in the world. Hydraulic turbines are subject to an increase number of transient operation such as start/stop as well as load variations due to the introduction of renewable energy resources such as wind power and the deregulation of electricity markets. As hydraulic turbines were initially build to run as base load, there is a need to develop hydraulic turbines to meet today's needs. Such development may be done numerically and experimentally on generic models to study specific flow phenomena and on turbine models and prototypes. The challenges are large as the flow is turbulent, time dependent subject e.g. to separation and vortex breakdown.

Biography

Prof. Michel Cervantes was born in 1968, and completed all his primary/high schools and university education in France. He joined Lule å University of Technology (LTU), Sweden, in 2000 for his PhD study. He received his PhD degree in May 2003. He was promoted as Docent (ability to lead research) in 2007 and Professor in 2010. Prof. Michel Cervantes works as a senior researcher and leader in numerous projects. He supervises PhD students (currently 5) and support post-doc (currently 3). He has a wide international network and collaborates closely with industry. As a teacher/adviser, he has been involved in several courses for undergraduates and PhD students. About 100 papers of various kinds have been extensively published in international journals or conference proceedings.

Professor Cervantes is for the moment:

- Director of the research school within the Swedish Hydropower Centre (SVC)
- Responsible of the experimental fluid mechanics within SVC
- Responsible of flow measurement in hydraulic turbine in Sweden
- Deputy scientific director Renewable Energy at LTU
- Responsible for the specialization wind and water, LTU

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