



Prof. François Avellan, director of the EPFL Laboratory for Hydraulic Machines, graduated in Hydraulic Engineering from Ecole nationale supérieure d'hydraulique, Institut national polytechnique de Grenoble, France, in 1977 and, in 1980, got his doctoral degree in engineering from University of Aix-Marseille II, France. Research associate at EPFL in 1980, he is director of the EPFL Laboratory for Hydraulic Machines since 1994 and, in 2003, was appointed Ordinary Professor in Hydraulic Machinery. Supervising 35 EPFL doctoral theses, he was distinguished by SHF, Société hydrotechnique de France, awarding him the "*Grand Prix 2010 de l'hydrotechnique*". His main research domains of interests are hydrodynamics of turbine, pump and pump-turbines including cavitation, hydro-acoustics, design, performance and operation assessments of hydraulic machines. Prof. Avellan was Chairman of the IAHR Section on Hydraulic Machinery and Systems from 2002 to 2012. He has conducted successfully several Swiss and international collaborative research projects, involving key hydropower operators and suppliers, such as:

- Coordination for the FP7 European project n° 608532 "*HYPERBOLE: HYdropower plants PERFORMANCE and flexiBLE Operation towards Lean integration of new renewable ENERGIES*" (2013-2015);
- EUREKA European research projects: N° 4150 and N° 3246, "*HYDRODYNA, Harnessing the dynamic behavior of pump-turbines*", (2003-2011), N° 1605, "*FLINDT, Flow Investigation in Draft Tubes*", <http://flindt.epfl.ch/>, (1997-2002). N° 2418, "*SCAPIN, Stability of Operation of Francis turbines, prediction and modeling*";
- Swiss KTI/CTI research projects with ALSTOM Hydro, Birr, SULZER Pumps, Winterthur and ANDRITZ Hydro, Zürich.
- ETH Domain, HYDRONET Project for the Competence Center Energy and Mobility, PSI Villingen.

Moreover, he is involved in scientific expertise and independent contractual experimental validations of turbines and pump turbines performances for the main hydropower plants in the world. In recognition for his work as Convenor of the IEC TC4 working group of experts in editing the IEC 60193 standard he received the IEC 1906 Award.

He was recently involved in the modernization of the units of the pumped storage power plants of Bleinheim Gilboa for NYPA, [5], and Raccoon Mountain, [8], for TVA. Furthermore, he is participating to the development of the Swiss pumped storage projects of Nant de Drance, [8], [9], and FMHL Plus for ALPIQ; Linth Limmern for AXPO and Rhône-Dix for Grande Dixence SA.

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