



Technical Sessions (Wednesday Afternoon, September 19)

Wednesday Afternoon (September 19) 13:10 - 15:10

Hydraulic Turbines 10 (RY202)

Chairs: Mr. Ryoji Suzuki (Voith Fuji Hydro K.K., Japan), Mr. Coulson Stuart (Voith Hydro, USA)

[IAHR2018-176](#) “**Optimisation of Pelton Turbine Jet Deflector Using CDF Analysis**”, Boro Popovski (University Ss Cyril and Methodius, Macedonia), Andrej Lipej (Faculty of Technologies and Systems, Slovenia), Predrag Popovski (University Ss Cyril and Methodius, Macedonia), Zoran Markov (University Ss Cyril and Methodius, Macedonia)

[IAHR2018-179](#) “**Experimental and Numerical Analysis of Turbulent Velocity Fluctuations in a Francis Turbine Draft Tube in Part Load Operation**”, Axel Frey (Institute of Fluid Mechanics and Hydraulic Machinery, University of Stuttgart, Germany), Oliver Kirschner (Institute of Fluid Mechanics and Hydraulic Machinery, University of Stuttgart, Germany), Stefan Riedelbauch (Institute of Fluid Mechanics and Hydraulic Machinery, University of Stuttgart, Germany), Roland Jester-Zuerker (Voith Hydro Holding GmbH & Co. KG, Germany), Alexander Jung (Voith Hydro Holding GmbH & Co. KG, Germany)

[IAHR2018-190](#) “**CFD-based casing and distributor hydraulic design optimization**”, Christophe Devals (Ecole Polytechnique de Montreal, Canada), Nigel Murry (Andritz Hydro Canada Inc., Canada), Brian Mullins (Andritz Hydro Canada Inc., Canada), Julien Dompierre (Ecole Polytechnique de Montreal, Canada), Luca Mangani (Lucerne University of Applied Sciences and Arts, Switzerland), Francois Guibault (Ecole Polytechnique de Montreal, Canada)

[IAHR2018-193](#) “**Micro-energy Harvesting Based on Vortex Induced Vibration of Cross-flow Turbine with Various Cantilever Beam Configurations**”, HyeonJae Noh (Sungkyunkwan University, Korea), JaeSung Lee (Sungkyunkwan University, Korea), YounJea Kim (Sungkyunkwan University, Korea)

[IAHR2018-194](#) “**Multilevel Design Optimization of Hydraulic Turbines based on Hierarchical Metamodel-Assisted Evolutionary Algorithms**”, Evgenia Kontoleonos (ANDRITZ HYDRO GmbH, Austria), Markella Zormpa (National Technical University of Athens, Greece), Sigrun Nichtawitz (ANDRITZ HYDRO GmbH, Austria), David Mack-Sahl (ANDRITZ HYDRO GmbH, Austria), Simon Weissenberger (ANDRITZ HYDRO GmbH, Austria)

[IAHR2018-196](#) “**Refurbishment of twin Francis Turbines – Maximising the annual Production**”, Helmut Benigni (University of Technology, Graz, Austria), Jurgen Schiffer (University of Technology, Graz, Austria), Helmut Jaberg (University of Technology, Graz, Austria)