IST – LNEC Joint doctoral Initiative

Dissertation Proposal

TITLE: Damping effects and system control due to hydraulic transients in water pipe systems

Short Description (up to 500 characters)
- Development of CFD analysis (1D, 2D and/or 3D) and experimental tests for water hammer events in pipe systems with and without air-vessel as a protection device. - Analysis of the potential flow energy absorption of two-phase flows in air/viscous vessels regulated by special damping effects concerning different boundary conditions and compression and expansion phases. - Investigation on air/viscous vessels´ behaviour for safety purposes when applied to pump and hydropower systems. - Establishment of guidelines for design towards a stable flow condition and a system safety control.
Keywords: Water hammer, CFD analysis, air-vessels, damping effects, water pipe systems

Supervisors	
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Planned start date:	Doctoral Program: Civil Engineering, IST