

Title: Network Control and Supervision for Complex Water Systems

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Abstract: The aim of this track is to provide the communities of networked systems and environmental modelling and control with an opportunity to exchange information and new ideas, and to discuss new developments for networked systems and distributed systems in the context of water resource systems. Water systems are in the center of Human societies. Water resource is used for drinking water, irrigation, industry, transport. It has to be valorized after its use thanks to waste treatment systems. In several parts of the world, the management of water networks will be impacted by climate change. The scarcity and the precious value of water will be increased in a close future. Hence, the efficient management of water networks is still an ongoing challenge for the Automatic Control community. Whatever is the considered water system (irrigation canals, inland navigation networks, drinking water networks, sewage systems...), it is still necessary to improve existing models (predictive model, model dealing with uncertainties), monitoring schemes, control algorithms, supervision techniques (detection and isolation of faults, quality), prognostic methods (forecasting of future states), management strategies dealing with several and often inconsistent objectives. The design of efficient water management strategies can gather multidisciplinary activities with researchers from computer sciences (machine learning, Artificial Intelligence) and control theory. This track offers the opportunity to exchange ideas and interact between researchers and water managers. Topics of the track include but are not limited to:

- Modeling of large-scale systems (physical-based or data-based models),
- Robust/Adaptive control,
- Model predictive control,
- Centralized or decentralized/distributed control,
- Nonlinear control,
- Fault detection and isolation,
- Prognosis,
- Optimization approaches,
- Hierarchical management/control schemes,
- ...