Open Invited Track Proposal on

# Water asset management based on innovative Control approaches

## Summary Statement

The summer of 2022 was particularly revealing in terms of climate change, with a strong and lasting drought in Europe and record rainfall in Asia. These events further demonstrate the high vulnerability of all human activities to the availability of water resources. Although the Automatic Control community has contributed to the improvement of water resource management for several decades, climate change and the increase in the world's population show that new challenges still lie ahead. It is requiring the development and design of i) models of hydro-systems based on a combination of physical and digital solutions, ii) tools for water management dealing with multi-risk and multi-constraint approach, with large-scale and uncertainties, iii) implementation of management strategies for adaptation and mitigation to extreme events; drought and flood.

The invited tracks in the two last edition of the IFAW WC demonstrate the great interest of researchers for this topic with contributions in modelling (data-driven model, predictive model, model dealing with uncertainties) and control algorithms (Model Predictive Control, optimal control, among many others). Organizers are waiting contributions from the Automatic Control community gathering multidisciplinary expertise from researchers belonging to Computer Sciences (Machine Learning, Artificial Intelligence) and Control Theory. This track offers the opportunity to exchange ideas and interact between researchers. Topics of the track include but are no limited to:

- Modeling of large-scale systems (physical-based or data-based models)
- Optimization approaches
- Robust/Adaptive control
- Model predictive control
- Centralized control
- Decentralized/distributed control
- Coalitional control
- Nonlinear control
- Hierarchical management/control schemes

This Open Invited Track is proposed in the framework of the IFAC TC 8.3 "Modelling and control of environmental systems".

## Organizers

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