# "ELECTROHYDRODYNAMIC AND BEYOND"

## TRACK NUMBER 800

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**Keywords:** active flow control, magnetohydrodynamic, Computational Fluid Dynamics

## ABSTRACT

Electrohydrodynamic (EHD) and magnetohydrodynamic (MHD) systems have gained significant attention in various fields due to their potential for improving performance and enabling novel applications. Active flow control using systems based on EHD and MHD principles is a rapidly developing field within fluid mechanics, aims to enhance drag reduction, lift increase, mixing enhancement, and noise reduction. Techniques such as plasma actuators, laser energy deposition, MHD- and EHD-guided flows have emerged as prominent examples of systems operating on the principles of EHD and MHD. Understanding the fundamental mechanisms, optimizing these actuators, and exploring new applications are crucial areas of research. The optimization and improvement of electrohydrodynamic systems heavily rely on comprehensive numerical modeling and robust computational tools. The computational fluid dynamics (CFD) modeling of EHD systems represents a challenging multiphysics problem where Maxwell's equations are coupled with the governing equations of fluid flow. Such problems typically involve various temporal and spatial scales that necessitate specialized numerical considerations. This mini-symposium aims to bring together researchers working on computational modeling aspects of EHD and MHD systems. While the primary focus is on flow actuators, secondary applications of these devices, such as ice control systems, sensory systems, and micropropulsion systems, will also be considered. The symposium seeks to provide a platform for sharing novel research, discussing advancements in computational modeling techniques, and exploring potential applications of EHD and MHD systems beyond flow control.

## REFERENCES

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