Track 4: Bio-Inspired and Biomedical Fluid Dynamics

Sponsors: Fluids Engineering Division

Topic 4-1: Interactions in Bio-inspired Propulsion (CFDTC, FMTC)

Organizers:

Chengyu Li: chengyu.li@villanova.edu
Haibo Dong: hd6q@virginia.edu
Yuanhang Zhu: yuanhang.zhu@ucr.edu
Javid Bayandor: bayandor@buffalo.edu

Descriptions:

This symposium will serve as a premier platform for researchers, engineers, and practitioners to present their latest findings, share insights, and discuss cutting-edge research and developments in bio-inspired propulsion and their engineering applications. The symposium will cover a broad range of topics related to the fascinating dynamics and innovative potential of bio-inspired propulsion. Areas of interest include but are not limited to, the following topics: (1) fish schooling hydrodynamics; (2) bio-inspired propulsors; (3) multi-physics in bio-inspired propulsion; (4) design and implementation of bio-inspired swarms; (5) Novel computation and experimentation technologies for studying bio-inspired flows.

Topic 4-2: Biological and Biomedical Applications of Micro and Nano-Fluidic Systems (MNFDTC, FMTC)

Organizers:

Mehdi Salek: msalek@mit.edu
Sangjin Ryu: sangjin.ryu@unl.edu
Jalal Ahamed: m.ahamed@uwindsor.ca
Javid Bayandor: bayandor@buffalo.edu

Descriptions:

This topic covers various applications of micro/nanofluidic systems for diverse biological problems such as biomolecule control and cellular biomechanics, and biomedical applications such as point-of-care diagnostic devices and circulating tumor cells separation.

Topic 4-3: Applications of CFD in Medicine and Biomedical Systems (CFDTC, FMTC)

Organizers:

Isaac Bernabe Perez Raya: ibpeme@rit.edu
Yassin Hassan: Y-HASSAN@TAMU.EDU
Zhongquan Zheng: zzheng@usu.edu

Descriptions:

The topic Applications of Computational Fluid Dynamics Medicine and Biomedical Systems focuses on transport phenomena taking place in human body, medical devices, or medicine and biomedical systems in general. Both CFD and experimental works are welcomed.