

Special Issue

Advances in Biological Flows and Biomimetics

Message from the Guest Editors

The biological world is replete with countless examples of fluid dynamics problems including pumping of blood by the heart, swimming in water and mucus, flying on scales from tiny insects to large birds, filtering through bristled appendages and other porous structures, and drag reduction through reconfiguration. Recent advancements in computational and experimental fluid dynamics have enabled researchers to efficiently explore biological problems that involve moving elastic boundaries across orders of magnitude in scale. Efforts to understand the dynamics of these types of problems through mathematical analysis, laboratory experiments, and numerical modeling is a rapidly expanding area of fluid mechanics. Simplified mathematical and physical models of these systems also have the potential to inform the design of robots and autonomous underwater and aerial vehicles. This Special Issue of *Fluids* is dedicated to the recent advances in the mathematical, numerical and physical modeling of problems in biological fluid dynamics with applications to bio-inspired design.

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