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Announcement

Bioinspired, Biomimetic and Nanobiomaterials

ice Publishing

Award-winning paper in 2020

Papers published in *Bioinspired, Biomimetic and Nanobiomaterials* are eligible for awards from the Institution of Civil Engineers. Papers from any of the ICE journals can be nominated for several awards. In addition, each journal has awards dedicated to their specific subject area.

On Friday 15 October 2021, ICE president Rachel Skinner presented awards to the following papers published in *Bioinspired, Biomimetic and Nanobiomaterials* in 2020. The editorial panel nominated their best papers and an awards committee chaired by Tim Broyd allocated the awards.

Kajal Mallick Memorial

The Kajal Mallick Memorial, presented to the best paper published in *Bioinspired, Biomimetic and Nanobiomaterials*, was awarded to Marimuthu and Chinnathambi (2020).

Abstract

Butterfly valves are most commonly used in aerospace and mechanical industries to regulate fluid flow. Although butterfly valves are known for their low pressure drop functions, still instabilities occur when operating the valves from closed to open positions. Disturbances like the skin friction and turbulence kinetic energy of the disc greatly reduce the outlet velocity of the fluid. Although there are many techniques to address the disturbances, studies on the sharkskin pattern gained a spotlight in solving both aerodynamic and hydrodynamic problems in internal flows. In this computational work, the performance of the butterfly valve is improved with the help of the implemented biomimetic pattern on the surface. It was noted from the computational analysis that the skin friction coefficient, turbulence kinetic energy and outlet velocity of the butterfly valve could be enhanced by up to 83.24, 45.54 and 3.42%, respectively. The net mass flow rate of the pipe is also improved with the help of the biomimetic butterfly valve. Computational results were validated to ensure its steadiness. This computational research is proof of the concept 'fluid flow over a surface with little roughness is better than a smooth surface'.

REFERENCE

Marimuthu S and Chinnathambi D (2020) Computational analysis of biomimetic butterfly valve. *Bioinspired, Biomimetic and Nanobiomaterials* **9(4)**: 223–232, https://doi.org/10.1680/jbibn.20.00027.