

Special Issue

Flow-Induced Vibration: Structural Response, Vibration Control, and Energy Harvesting

Message from the Guest Editors

Flow-induced vibrations are frequently encountered in flexible civil and mechanical structures, e.g., long-span bridges, tall buildings, risers, heat exchanger tubes, etc. These vibrations are often undesirable as they may reduce the fatigue life and raise safety concerns for a lot of structures. Considerable vibration control measures have been developed for these structures to help mitigate excessive flow-induced vibrations. To extend the structural life of these types of structures and reduce the operational cost for a sustainable future, there is a rising need to understand the structural responses due to flow-induced forces in detail and develop more economical vibration control measures. On other occasions, flow-induced vibrations are beneficial, as they can work as a vibration source for the harvesting of renewable wind energy. In turn, the harvested energy can supply energy for active control measures and advance the applications of smart structural health monitoring solutions with wireless sensors that require local energy supplies.

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