Special Issue

Magnetorheological Actuators and Dampers

Message from the Guest Editors

Semi-active magnetorheological (MR) actuators and dampers have been commonly used in diverse applications such as vehicular seat suspension, passenger car suspension, engine mount vibration control, medical rehabilitation, robotics, or anti-earthquake structures. However, various factors, namely durability, temperature operating range, weight, cost, etc., have delayed the progress and the commercialization of the technology in certain areas. Therefore, the goal of this Special Issue is to cover the novel designs and applications of semi-active MR dampers and actuators. Theoretical inquiries presenting models capable of predicting the behavior of such devices and preferably supported by experimental studies are also welcome. Finally, the editors would like to invite research studies documenting recent progress in developing dedicated application-oriented MR fluid formulations. We kindly invite you to submit a manuscript(s) for this Special Issue. Full papers and topical reviews are all welcome.

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About the Journal

Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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