



## Vibration and Thermodynamic Studies of Advanced Materials

Guest Editor:

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### Message from the Guest Editor

Advanced materials such as lightweight and high-strength fiber-reinforced laminates, sandwich materials, nanocomposites, and functional gradient materials are widely used in aerospace, marine, automobile, rail, weapons, and other industries. Currently, there are a large number of advanced materials that are in service in various thermal environments, such as composite panels in high-speed aircraft, high-temperature turbine blades in aero-engines, and composite wings in unmanned solar aircraft. Due to the effect of high temperatures, which may reach hundreds or thousands of degrees Celsius, after a period of servicing time, these composite materials and structures will undergo severe vibration, weakened stiffness and strength, and dynamic fatigue problems, thus causing a possible catastrophic accident for the whole working components and systems. Unfortunately, experimental and theoretical reports on vibration and thermodynamic studies of advanced materials are still insufficient. Therefore, these areas will continue to be hot topics in advanced materials research for a long time to come.





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