Special Issue

Role of Materials in Controlling Friction, Wear, and Heat Generation Mechanisms

Message from the Guest Editors

Friction, wear and heating during sliding are key phenomena that determine the efficiency, durability and safety of many engineering systems. Thermal effects accompanying friction strongly influence wear mechanisms, stability of the friction coefficient and the service life of components, especially in materials sensitive to high temperatures. In braking systems, for instance, the coefficient of friction must remain stable under severe thermal loads, yet it often becomes strongly temperature-dependent. The condition of the surface layers of rubbing elements is governed not only by contact temperature but also by the spatial and temporal gradients of the temperature field, which shape stress states and structural changes. Comprehensive research combining theory, modeling and experiment is essential for advancing materials and coatings that can withstand these complex processes and ensure reliable performance in demanding applications.

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Materials (ISSN 1996-1944) was launched in 2008. The journal covers twenty-five comprehensive topics: biomaterials, energy materials, advanced composites, advanced materials characterization, porous materials, manufacturing processes and systems, advanced nanomaterials and nanotechnology, smart materials, thin films and interfaces, catalytic materials, carbon materials, materials chemistry, materials physics, optics and photonics, corrosion, construction and building materials, materials simulation and design, electronic materials, advanced and functional ceramics and glasses, metals and alloys, soft matter, polymeric materials, quantum materials, mechanics of materials, green materials, general. *Materials* provides a unique opportunity to contribute high quality articles and to take advantage of its large readership.

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