



New Developments in Friction Brake Materials

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Message from the Guest Editor

In an automobile, the braking system is of primary importance for the control and safety of the vehicle, as well as the safety of the people within it. The brake assembly consists of a rotating element (the disc) and a couple of stationary friction elements (the pads). In braking, the friction elements are clamped against the disc, causing the vehicle to slow and stop. The brake pad composition contains different ingredients (binder, reinforcement, filler, friction modifier, and abrasive), while brake discs are typically made of grey cast iron. Different studies have recently been focused on improving the wear characteristics of both pad and disc materials, including disc surface modification through coating or other surface treatments. The improvement of brake materials is aimed not only at the enhancement of tribological properties (friction coefficient, specific wear, noise) but also the reduction of brake system debris release.

The aim of this Special Issue is to improve the knowledge of brake materials (pads, disc) and their possible surface modifications, considering wear properties and emissions, which are very important from the environmental point of view.





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Message from the Editor-in-Chief

Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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