Special Issue

Tribological Analysis and Predictive Modeling of Advanced Materials

Message from the Guest Editor

The past two decades have witnessed remarkable progress in understanding mechanical wear mechanisms and the development of predictive modeling approaches for advanced materials. The advancement of computational modeling techniques, particularly finite element analysis and molecular dynamics simulations, has revolutionized our ability to predict wear behavior and optimize material performance. The integration of machine learning and artificial intelligence with traditional wear modeling has opened new possibilities for predictive maintenance and real-time wear monitoring systems. Contemporary challenges in mechanical wear analysis focus on developing comprehensive models that account for multiple wear mechanisms, environmental effects, and material degradation under complex loading conditions. The need for accurate wear prediction in extreme environments, such as space applications and high-temperature systems, drives the development of advanced modeling frameworks.This Special Issue will compile cutting-edge research in tribological analysis and predictive modeling of advanced materials.

Guest Editor

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