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Advances in Transition Metal and Rare-Earth Metal Based Alloys, Oxides, Chalcogenides, MXenes, and 2D-Materials

Guest Editor:

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Message from the Guest Editor

Transition-metal elements play important roles in many kinds of three-dimensional and two-dimensional materials such as transition-metal oxides (TMO), transition-metal chalcogenides (TMC), and MXenes (MX). They show diverse characteristics, from Mott-insulators, semiconductors, normal metals, magnetic materials, half-metals, semi-metals, multiferroics, thermoelectrics, topological materials, to superconductors. The underline mechanisms for this wide spectrum include strong correlation, spin–orbit interaction, metal–insulator transitions, charge-orbital ordering, magnetism, and interplays between charge, orbital, spin, and lattice structure degree of freedom. Low-dimensional transition-metal-based materials such as 2D-oxides, TMC, MX, thin films, heterostructures, and surface systems show even wider novel behaviors with high potential applications in future industry. This Special Issue is dedicated to achieve a better understanding regarding the novel properties of these transition-metal-based materials in all dimensions.

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Message from the Editor-in-Chief

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