



Advance in Alloy Materials

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Message from the Guest Editor

The history of the alloy materials dates back to the Bronze Ages. From that point on, mankind has been trying to make alloys by combining metals with one or more other elements to obtain the desired mechanical properties. The demands for advanced materials have been emphasized to meet the increasing requirements of industry in the form of high-performance structural materials. Among ferrous alloys, high-Mn steels were recently highlighted for their excellent combination of strength and ductility, led by twinning-induced plasticity (TWIP) or transformation-induced plasticity (TRIP) behavior. For non-ferrous lightweight alloys, such as magnesium, aluminum, and titanium alloys, their mechanical properties have been improved by employing solid solution and precipitation hardening mechanisms. Moreover, recently developed high-entropy alloys (HEA) have suggested new concepts by which the random occupation of alloying elements in a crystalline structure can be understood.





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Message from the Editor-in-Chief

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