



entropy



*Special Issue Reprint*

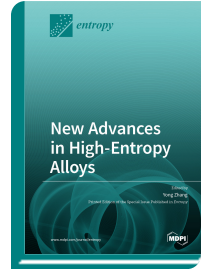
## New Advances in High-Entropy Alloys

[www.mdpi.com/books/reprint/3393](http://www.mdpi.com/books/reprint/3393)

Edited by  
Yong Zhang

ISBN 978-3-03943-619-4 (Hardback)

ISBN 978-3-03943-620-0 (PDF)



In recent years, people have tended to adjust the degree of order/disorder to explore new materials. The degree of order/disorder can be measured by entropy, and it can be divided into two parts: topological disordering and chemical disordering. The former mainly refers to order in the spatial configuration, e.g., amorphous alloys which show short-range ordering but without long-range ordering, while the latter mainly refers to the order in the chemical occupancy, that is to say, the components can replace each other, and typical representatives are high-entropy alloy (HEAs). HEAs, in sharp contrast to traditional alloys based on one or two principal elements, have one striking characteristic: their unusually high entropy of mixing. They have not received much noticed until the review paper entitled “Microstructure and Properties of High-Entropy Alloys” was published in 2014 in the journal of Progress in Materials Science. Numerous reports have shown they exhibit five recognized performance characteristics, namely, strength–plasticity trade-off breaking, irradiation tolerance, corrosion resistance, high-impact toughness within a wider temperature range, and high thermal stability. So far, the development of HEAs has gone through three main stages: 1. Quinary equal-atomic single-phase solid solution alloys; 2. Quaternary or quinary non-equal-atomic multiphase alloys; 3. Medium-entropy alloys, high-entropy fibers, high-entropy films, lightweight HEAs, etc. Nowadays, more in-depth research on high-entropy alloys is urgently needed.



Order Your Print Copy  
You can order print copies at  
[www.mdpi.com/books/reprint/3393](http://www.mdpi.com/books/reprint/3393)

MDPI Books offers quality open access book publishing to promote the exchange of ideas and knowledge in a globalized world. MDPI Books encompasses all the benefits of open access – high availability and visibility, as well as wide and rapid dissemination. With MDPI Books, you can complement the digital version of your work with a high quality printed counterpart.



### **Open Access**

Your scholarly work is accessible worldwide without any restrictions. All authors retain the copyright for their work distributed under the terms of the Creative Commons Attribution License.



### **Author Focus**

Authors and editors profit from MDPI's over two decades of experience in open access publishing, our customized personal support throughout the entire publication process, and competitive processing charges as well as unique contributor discounts on book purchases.



### **High Quality & Rapid Publication**

MDPI ensures a thorough review for all published items and provides a fast publication procedure. State-of-the-art research and time-sensitive topics are released with a minimum amount of delay.



### **High Visibility**

Due to our global network and well-known channel partners, we ensure maximum visibility and broad dissemination. Title information of books is sent to international indexing databases and archives, such as the Directory of Open Access Books (DOAB), and the Verzeichnis Lieferbarer Bücher (VLB).



### **Print on Demand and Multiple Formats**

MDPI Books are available for purchase and to read online at any time. Our print-on-demand service offers a sustainable, cost-effective and fast way to publish MDPI Books printed versions.