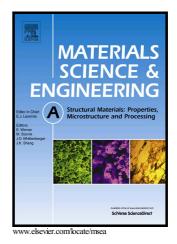
## Author's Accepted Manuscript

An overview of modeling the stacking faults in lightweight and high-entropy alloys: theory and application

Zongrui Pei



 PII:
 S0921-5093(18)31225-5

 DOI:
 https://doi.org/10.1016/j.msea.2018.09.028

 Reference:
 MSA36909

To appear in: Materials Science & Engineering A

Received date:27 June 2018Revised date:8 September 2018Accepted date:10 September 2018

Cite this article as: Zongrui Pei, An overview of modeling the stacking faults in lightweight and high-entropy alloys: theory and application, *Materials Science & Engineering A*, https://doi.org/10.1016/j.msea.2018.09.028

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## ACCEPTED MANUSCRIPT

## An overview of modeling the stacking faults in lightweight and high-entropy alloys: theory and application

Zongrui Pei\*

Oak Ridge National Laboratory, Oak Ridge, TN37831, USA (Dated: September 11, 2018)

Modeling stacking faults in lightweight and medium- to high-entropy alloys is an exciting and fast developing field. Stacking faults and associated defects play a key role in understanding and modeling mechanical properties of alloys. We review the recent the studies of stacking faults, dislocations and twins in the novel alloys. Although this Review is focused on the theories and their applications in modeling stacking faults, relevant experimental progresses are also discussed. The Review starts with a brief introduction for the significance of stacking faults. The theoretical methods to calculate (generalized) stacking faults are then summarized and new developments of the methods are formulated. In the framework of thermodynamics, we discuss the factors that affect stacking fault energies with latest examples. Important applications of the (generalized) stacking fault method in lightweight and high-entropy alloys are demonstrated in details with research by us and other researchers. Last but not least, some generalizations of the generalized stacking fault aloys a method are discussed, among which is our new method to search possible twin boundaries. We conclude that many of these methods developed for the conventional alloys are ready for future Download English Version:

## https://daneshyari.com/en/article/10155892

Download Persian Version:

https://daneshyari.com/article/10155892

Daneshyari.com