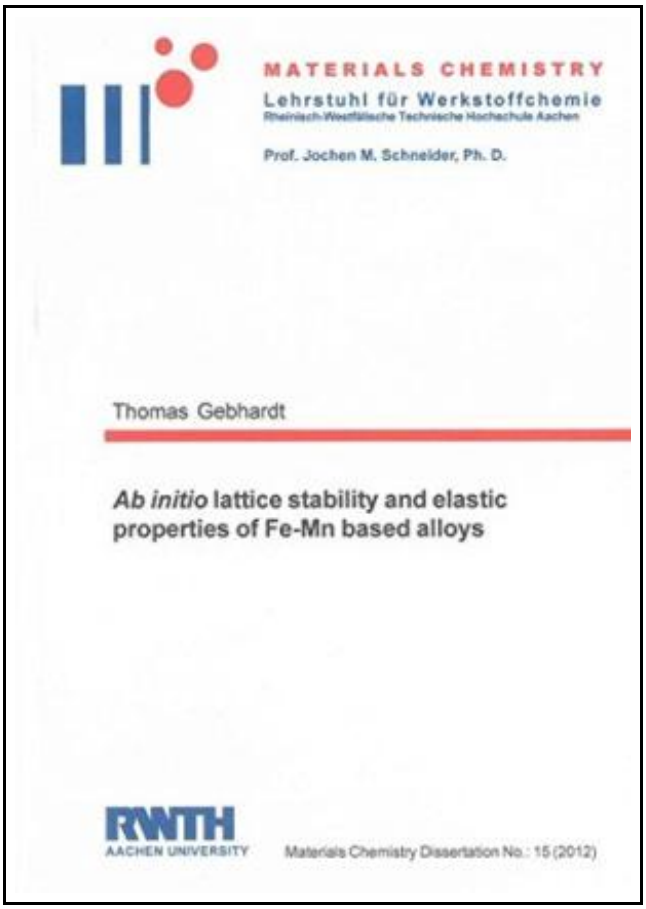
Ab initio lattice stability and elastic properties of Fe-Mn based alloys



Filesize: 1.19 MB

Reviews

It in a of the best book. Indeed, it really is play, nevertheless an amazing and interesting literature. It is extremely difficult to leave it before concluding, once you begin to read the book.
(Sofia Yundt)

AB INITIO LATTICE STABILITY AND ELASTIC PROPERTIES OF FE-MN BASED ALLOYS

To save **Ab initio lattice stability and elastic properties of Fe-Mn based alloys** eBook, make sure you click the link listed below and download the file or have access to additional information that are highly relevant to AB INITIO LATTICE STABILITY AND ELASTIC PROPERTIES OF FE-MN BASED ALLOYS ebook.

Shaker Verlag Feb 2012, 2012. Taschenbuch. Book Condition: Neu. 210x148x mm. Neuware - Fe-Mn based alloys exhibit fascinating properties for a wide range of applications. Fe-Mn alloys can be seen as prototypes for high-Mn steels, featuring high strength and exceptional plasticity due to various metal-physical deformation mechanisms under mechanical load, providing therefore great potential for structural components in automotive engineering. The stacking fault energy (SFE) of the face-centered-cubic (fcc) phase, strongly affected by the chemical composition, governs the deformation behavior and hence the mechanical properties. In a first part of this thesis, the influence of the magnetic state on the lattice stability of fcc vs. hcp Fe-Mn random alloys with and without additions of Al and Si was studied using ab initio calculations. The ab initio results are consistent with thermodynamic calculations, obtained with Calphad. With room temperature magnetic configurations, the cross-over between Ehcp and Efcc of binary Fe-Mn alloys is in the expected Mn range and the increase of SFE below the Néel temperature due to additions of Mn is well displayed. The addition of Al strongly stabilizes the fcc lattice below the fcc Néel temperature, which is consistent with an increase in SFE, whereas adding Si yields a stabilization of the hcp lattice and is hence expected to decrease the SFE. For the paramagnetic (PM) configuration, the hcp lattice is stable for all regarded compositions, at which both Al and Si additions decrease the lattice stability of hcp and hence may increase the SFE. Based on a comparison with experimental results, the qualitative trends of the influence of the alloying elements Al and Si on the SFE are well displayed using the proposed firstprinciples description of the lattice stability of hcp and fcc Fe-Mn random alloys. These results are therefore of relevance for understanding and describing the deformation...

Other PDFs

[PDF] Psychologisches Testverfahren

Follow the link below to download and read "Psychologisches Testverfahren" file.

Download Document »

[PDF] Programming in D

Follow the link below to download and read "Programming in D" file.

Download Document »

[PDF] Fart Book African Bean Fart Adventures in the Jungle: Short Stories with Moral

Follow the link below to download and read "Fart Book African Bean Fart Adventures in the Jungle: Short Stories with Moral" file.

Download Document »

[PDF] Adobe Indesign CS/Cs2 Breakthroughs

Follow the link below to download and read "Adobe Indesign CS/Cs2 Breakthroughs" file.

Download Document »

[PDF] The Java Tutorial (3rd Edition)

Follow the link below to download and read "The Java Tutorial (3rd Edition)" file.

Download Document »

[PDF] Have You Locked the Castle Gate?

Follow the link below to download and read "Have You Locked the Castle Gate?" file.

Download Document »