### **Accepted Manuscript**

Algorithms for design optimization of chemistry of hard magnetic alloys using experimental data

Rajesh Jha, George S. Dulikravich, Nirupam Chakraborti, Min Fan, Justin Schwartz, Carl C. Koch, Marcelo J. Colaco, Carlo Poloni, Igor N. Egorov

PII: S0925-8388(16)31196-3

DOI: 10.1016/j.jallcom.2016.04.218

Reference: JALCOM 37416

To appear in: Journal of Alloys and Compounds

Received Date: 12 December 2015

Revised Date: 12 March 2016
Accepted Date: 21 April 2016

Please cite this article as: R. Jha, G.S. Dulikravich, N. Chakraborti, M. Fan, J. Schwartz, C.C. Koch, M.J. Colaco, C. Poloni, I.N. Egorov, Algorithms for design optimization of chemistry of hard magnetic alloys using experimental data, *Journal of Alloys and Compounds* (2016), doi: 10.1016/j.jallcom.2016.04.218.

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 proof before it is published in its final 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

# Algorithms for design optimization of chemistry of hard magnetic alloys using experimental data

Rajesh Jha<sup>a</sup>, George S. Dulikravich<sup>a,\*</sup>, Nirupam Chakraborti<sup>b</sup>, Min Fan<sup>c</sup>, Justin Schwartz<sup>c</sup>, Carl C. Koch<sup>c</sup>, Marcelo J. Colaco<sup>d</sup>, Carlo Poloni<sup>e</sup>, Igor N. Egorov<sup>f</sup>

<sup>a</sup>Florida International University, MAIDROC Laboratory, Department of Mechanical and Materials Engineering, 10555 West Flagler Street, Miami, Florida 33174, USA E-mail of the corresponding author: dulikrav@fiu.edu

<sup>b</sup>Indian Institute of Technology, Department of Materials Engineering, Kharagpur, W.B.: 721302, India

<sup>c</sup>North Carolina State University, Materials Science and Engineering Department, Raleigh, NC 27695, USA

<sup>d</sup>Federal University of Rio de Janeiro/COPPE, Mechanical Engineering Department, Rio de Janeiro, Brazil

<sup>e</sup>University of Trieste, Dipartimento di Ingegneria e Architettura, Via Valerio, 10, 34127 Trieste, Italy

<sup>f</sup>SIGMA Technology, Electrozavodskaia St., 20, Moscow, 107023, Russia

#### Highlights

- Design of experiments algorithms created initial concentrations of alloying elements
- Multi-dimensional hyper-surfaces were used to fit experimental data
- Multi-objective optimization was used to find Pareto optimal concentrations
- Statistical measures determined the relative influence of individual elements

#### Download English Version:

## https://daneshyari.com/en/article/7997089

Download Persian Version:

https://daneshyari.com/article/7997089

<u>Daneshyari.com</u>