THE 11TH INTERNATIONAL CONFERENCE ON NUMERICAL METHODS IN INDUSTRIAL FORMING PROCESSES

NUMIFORM 2013

Shenyang, China 6 – 10 July 2013

EDITORS

Shi-Hong Zhang
Institute of Metal Research, Shenyang, China

Xiang-Hua Liu
Northeastern University, Shenyang, China

Ming Cheng
Institute of Metal Research, Shenyang, China

Juan Li
Institute of Metal Research, Shenyang, China

All papers have been peer reviewed.

SPONSORING ORGANIZATIONS
Chinese Academy of Sciences (CAS)
National Natural Science Foundation of China (NSFC)
Chinese Society for Technology of Plasticity (CSTP)
Shenyang Science and Technology Bureau
TRANSVALOR S. A.

AIP | Publishing

Melville, New York, 2013
AIP | CONFERENCE PROCEEDINGS ■ 1532

Editors

Shi-Hong Zhang
Institute of Metal Research
Chinese Academy of Sciences
Specialized Materials and Devices Division
72 Wenhua Road, Shenyang
China

E-mail: shzhang@imr.ac.cn

Xiang-Hua Liu
Northeastern University
State Key Laboratory of Rolling and Automation
No.11, Lane 3, Wenhua Road, Shenyang
China

E-mail: liuxh@mail.neu.edu.cn

Ming Cheng
Institute of Metal Research
Chinese Academy of Sciences
Specialized Materials and Devices Division
72 Wenhua Road, Shenyang
China

E-mail: mcheng@imr.ac.cn

Juan Li
Institute of Metal Research
Chinese Academy of Sciences
Specialized Materials and Devices Division
72 Wenhua Road, Shenyang
China

E-mail: lijuan@imr.ac.cn

ISBN 978-0-7354-1156-2 (Original Print)
ISSN 0094-243X
Printed in the United States of America

AIP Conference Proceedings, **Volume 1532**
The 11th International Conference on Numerical Methods in Industrial Forming Processes
NUMIFORM 2013

Table of Contents

ORAL PAPERS

POSTER PAPERS