



Vol.7 No.2 May 2010

(Quarterly, started in August 2004)

As the transaction for Foundry Institution of Chinese Mechanical Engineering Society (FICMES), CHINA FOUNDRY, published quarterly to a worldwide readership in English by Foundry Journal Agency, covers the whole fields of foundry technology for iron, steel and non-ferrous castings, including sand molding casting, die casting, investment casting, etc. It mainly reports advanced scientific and technical achievements, applied technology, successful experiences in production organization, management and leadership, recent developments and industry information. The Foundry Journal Agency is not responsible for statements or opinions advanced by authors of papers or articles printed in the publications. CHINA FOUNDRY is indexed by Science Citation Index-Expanded (SCI-E) (available through the Web of Science<sup>®</sup>, beginning with the first issue of 2007), Chemical Abstracts (CA), Cambridge Science Abstracts (CSA) and Abstract Journal (AJ) and so on.



#### Copyright:

© Foundry Journal Agency. All rights reserved. No part of this publication may be reproduced or transmitted in any form or any means, or translated into a foreign language without the written permission of the copyright owners.

# Contents

## Research & Development

- 109** Influence of melt hydrogenation during induction skull melting process on the solidification microstructure of Ti- 6Al- 4V alloy  
Zhang Yuehong, Su Yanqing, Ye Xicong, et al
- 113** Microstructures and formation mechanism of hypoeutectic white cast iron by isothermal electromagnetic rheocast process  
Zhang Wanning , Song Dan, Zhang Hongbing, et al
- 117** Effects of spherical quasi- crystal on microstructure and mechanical properties of ZA155 high zinc magnesium alloy  
Zhang Jinshan, Liu Yali, Zhang Yan, et al
- 121** Complicated hollow turbine blades and surface grain refinement process  
Peng Zhijiang, Jia Shuqin, Zhang Zehai, et al
- 127** Numerical simulation of die filling behavior of AZ91D in the semisolid process  
Zhu Guanglei, Xu Jun, Zhang Zhifeng, et al
- 132** Reversing design methodology of investment casting die profile based on ProCAST  
Dou Yangqing, Bu Kun, Dou Yangliu, et al
- 138** Temperature- induced anomalous structural changes of Al- 12wt.%Sn- 4wt.%Si melt and its influence on as- cast structure  
Wang Zhiming, Geng Haoran, Zhou Guorong, et al
- 143** Cellular automaton modeling of semi- solid microstructure formation  
Li Qiang, Yu Baoyi, Zhang Huawen, et al
- 149** Effect of strontium on primary dendrite and eutectic temperature of A357 aluminum alloy  
Chen Zhongwei and Zhang Ruijie
- 153** Influences of electric pulse on solidification structure of LM- 29 Al- Si alloy  
He Lijia, Wang Jianzhong, Qi Jingang, et al
- 157** Study on in- situ WC particles/tungsten wire reinforced iron matrix composites under electromagnetic field  
Niu Libin, Xu Yunhua and Wu Hong



## An Informative Window on China's Foundry Industry

### Overseas Foundry

- 163** Performance of heavy ductile iron castings for windmills  
Iulian Riposan, Mihai Chisamera and Stelian Stan
- 171** Hot mold casting process of ancient East India and Bangladesh  
Barnali Mandal and Prasanta Kumar Datta
- 178** Critical cooling rate on carbide precipitation during quenching of austenitic manganese steel  
Youn-Soo Ham, Jeong-Tae Kim, Si-Young Kwak, et al

### Serial Report

- 183** Colour Metallography of Cast Iron  
Chapter 2: Spheroidal Graphite Cast Iron (\*)  
Zhou Jiyang, Professor, Dalian University of Technology

### Information

- 199** People in Foundry Field of China
- 201** PRESS RELEASE \* Foseco and ProService Join Forces for Thermal Analysis systems
- 202** Some of Bronze Casting Public Sculptures received the China's Public Sculpture Achievement Award
- 205** One Goal, One Expectation \* Do a good job as host of the 69th World Foundry Congress
- 209** Symposium of \*Shaping and Forming of High Strength Steel, Titanium, and Light Metals\* at 2010 MS&T Conference
- 210** Titles of Papers Contributed to the 69th WFC
- 215** Preliminary Program, Registration Information and Works Visits for the 69th WFC

### Advertisements

- Inside Front Cover, A1** Suzhou Xingye Foundry Materials Co., Ltd.  
Suzhou Xingye Chemicals Co., Ltd.
- Inside Front Cover, B2** Foundry Journal Agency
- Back Cover** Shengquan Group
- A2** The 69th World Foundry Congress, 2010, Hangzhou China
- A3** Illustration for Front Cover \* Elephant- Shaped Zun
- B1** Shenyang Research Institute of Foundry

**Responsible Department:**  
China Machinery Industry Federation

**Sponsor:**  
Shenyang Research Institute of Foundry

**Associate Sponsor:**  
Foundry Institution of Chinese Mechanical Engineering Society

**Edited and Published by:**  
Foundry Journal Agency

**Director:**  
Lou Yanchun

**Chief Editor:**  
Ge Chenguang , gcg@foundryworld.com

**Associate Editor:**  
Jia Shuqin, jsq@foundryworld.com

**Editor:**  
Zhang Chunyan, zcy@foundryworld.com

**Circulation and Advertising Contact:**  
Zhang Chunyan, zcy@foundryworld.com

**Add:** No.17 Yunfeng Street South, Tiexi District,  
Shenyang 110022, P. R. China

**Tel:** + 86 - 24 - 2584 7830, 25852311-209

**Fax:** + 86 - 24 - 2561 1880

**Website:** www.foundryworld.com

#### Subscription and Payment:

**Subscription rates:**

China: CNY 24, single issue

CNY 96, 4 issues for one year  
(includes postage)

Overseas: US\*15, single issue

US\*60, 4 issues for one year  
(includes postage)

The line of paying by T/T is as follows:

Remitting Bank: Bank of America N. A. New York

Swift code: BOFAUS3N

Intermediary Bank: Industrial and Commercial  
Bank of China H.O.

Swift code: ICBKCNBJ

A/C No.: 6550790149

Beneficiary's Bank: Industrial and Commercial Bank  
of China Liaoning Province Branch

Swift code: ICBKCNBJLNP

Beneficiary's A/C No.: 33010050092640081-18

Beneficiary's Name: Shenyang Research Institute of  
Foundry