

# EPM 2015

October 12-16, 2015  
8<sup>th</sup> International Conference  
on Electromagnetic Processing of Materials

Hôtel Majestic - Barrière, Cannes sur Mer • France



## PROGRAM

SIMAP Laboratory – EPM Group  
1340 rue de la Piscine  
38400 St Martin d'Hères  
France



## **Welcome to the 8th EPM conference**

Electromagnetic Processing of Materials (EPM) relates to all branches of materials processing where some benefit could be attained using an electromagnetic influence on the process. This covers traditional areas such as liquid metal processing, metal casting and solidification, induction heating, but also crystal growth from the melt, plasma processes, recycling, separation,....

The series of EPM conferences was initiated in 1994 by S. Asai (Japan) and M. Garnier (France). It takes place every three years alternating between Europa and Asia (Nagoya 1994, Paris 1997, Nagoya 2000, Lyon 2003, Sendai 2006, Dresden 2009, Beijing 2012). The conference is open for any kind of materials processing involving electric or magnetic fields. It intends to bring together people from academic institutions, industry and related equipment manufacturers.

For its eighth edition, we chose a prestigious location in Cannes, famous for its International Film Festival. The hotel is located on the Croisette in front of the Palais des Festivals. It boasts a private beach overlooking the Mediterranean Sea.

We believe that the conference would become very active and fruitful thank to your participation.

Thank you for participating in EPM2015 !

The EPM2015 Organizing Committee.

## Chair persons

Honorary chairman of the conference : ASAI Shigeo

Chairman of the conference : Yves FAUTRELLE

Chairwoman of the conference : Jacqueline ETAY

## International Scientific Committee

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YANG Yuansheng	IMR-CAS, Shenyang	China
YASUDA Hideyuki	Kyoto University	Japan
Kader ZAIDAT	Grenoble University	France
ZHAO Xiang	Northeastern University, Shenyang	China



**Local Organisation committee / Laboratoire SIMAP :**

- Olga BUDENKOVA
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- Christian GARNIER
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with the logistic support of CNRS-DR11

- Emilie Morales



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- Sonia Prudhomme

**Special thanks to**

- Dr. Wenjia Su from Jiangsu University for translating the EPM2015 website from English into Chinese
- Professor Engang Wang from Northeastern University for advertising EPM2015 on the CSM website.

## Location

Le Majestic Cannes  
10, La Croisette  
06407 Cannes  
France  
Tél: +33 (0) 4 92 98 77 00

Cannes is located in “la Côte d'Azur” (French Riviera) which is the Mediterranean coastline of the southeast corner of France. “La Côte d'Azur” is home to more than 163 nationalities with almost 100,000 foreign residents.

Cannes is a busy tourist destination. Moreover, since 1946, it is the host of the annual International Cannes Film Festival.

“La Croisette” is the 2 km long waterfront avenue with palm trees and is known for picturesque beaches and for restaurants, cafés and boutiques.

<http://www.lucienbarriere.com/fr/hotel-luxe/Cannes-Majestic-Barriere/accueil.html>

## Venue

### Arrive by rail

Hotel Majestic is conveniently located nearby the Cannes Railway Station (5 minute’s walk).

TGV rail services to “Gare de Cannes” provide access from major French cities, including Nice, Marseille, Lyon, Paris and Toulouse. Other cities with rail connections include Brussels (6 hours), Milan (5 hours), Basel (10 hours), Rome (10 hours) and Venice (10 hours).

See : <http://www.gares-en-mouvement.com/en/frjca/accueil/>

To book a train seat : <http://voyage-sncf.com>

### Arrive by air

Nice Côte d'Azur Airport (French: Aéroport Nice Côte d'Azur) (IATA: NCE) is an international airport located southwest of Nice ((<http://en.nice.aeroport.fr/>)).

It is connected to hundreds of international destinations, is 30 minutes from the hotel using A8 motorway.

The hotel does not have its own shuttle service.

Bus shuttle : Nice Airport => Cannes bus Station - every 20 minutes - 18 Euros - 5 minutes walk from the hotel. For the return journey (from the hotel to the airport) a bus stop is in front of the hotel.

A taxi from the airport to the hotel costs 90 Euros.

### Arrive by car

Satellite navigation coordinates: 43.551295, 7.020062

See your route : <http://www.lucienbarriere.com/fr/hotel-luxe/Cannes-Majestic-Barriere/informations-pratiques-hotel.html>

Fees for parking of the hotel : 45 Euros/day

## **Registration**

- Monday, October 12, Véranda Dinard from 14 :00 till 22:00
- After Monday, Galerie Marta

## **Langage**

The language of the conference is English

## **Oral communications**

- Plenary lectures last 35 minutes and 5 minutes for discussion
- Keynote lectures last 25 minutes and 5 minutes for discussion
- Oral communication last 15 minutes and 5 minutes for discussion

Speakers are invited

- before speaking, to upload their presentation before the session
- before speaking, to check that each presentation works correctly
- to carefully respect the time

## **Posters Session**

- Location : Salon Croisette
- Time : Wednesday, October 14th from 14:00 to 19:00 in the Croisette salon.
- Size : A0 i.e. 841 x 1189 mm / Format : vertical
- Provided supports will be beige / each poster will have its own lamp.
- Posters will be numbered as in the present program => Fix your poster on the correct support
- The scientific committee will select and award two posters. Winners will be announced at the Gala dinner.

## **Internet access**

Wifi available in all hotel rooms.

## **Tours**

On Friday, October 16, the organizing committee coordinates two tours, one in the hinterland of Cannes, the other on the St Honorat island, for the rate of 80 euros per participant.

- St Honorat Tour (boat) *Departure Majestic 11:00 / English speaking guide / boat round trip / lunch at the restaurant "la Tonnelle" (Starter, Main Course, Dessert) / visit the island / wine tasting /return to Majestic 18:00*
- Grasse, St Cezaire & Cabris Tour (bus) - *Departure Majestic 09:00 / English speaking guide / Bus round trip / Visit of the GALIMARD perfumery / city tour using tourist train / Lunch / Caves of St Cezaire / Provençal village CABRIS / return to Majestic 18:00*



## Sponsors



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<http://sf2m.asso.fr/>



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<http://fluxtrol.com/>



Signal Processing  
<http://www.signal-processing.com/>

## EPM2015 conference at a glance

### Monday, October 12

#### Véranda Dinard

14 :00 – 22:00 Registration

#### Salon Dinard

19 :00 – 20 :00 Welcome Cocktail

### Tuesday, October 13

#### Salon Marta

08 :30 – 09- :00	Opening
09:00 – 10 :20	2 plenary lectures
10:20 - 10:50	Coffee Break (Galerie Marta)
11:30 - 12:10	2 plenary lectures
12:10 - 14:00	Lunch Break (Salon Croisette)
14:00 – 16 :00	3 plenary lectures
16:00 - 16:30	Coffee Break (Galerie Marta)
16 :30 – 18 :30	3 plenary lectures
18 :45 – 19 :30	Scientific Committee Meeting (Room Royan 1)

### Wednesday, 14, October

sessions	salon Marta1	salon Marta2	salle Royan1	salle Royan 2
8:30 - 10:20	SOLIDIFICATION 1/6	FUNDAMENTAL 1/6	LM PROCESSING 1/2	MEASURING TECH. 1/2
10:20 - 10:50	Coffee Break (Galerie Marta)			
10:50 - 12:40	SOLIDIFICATION 2/6	FUNDAMENTAL 2/6	LM PROCESSING 2/2	MEASURING TECH. 2/2
12:40 - 14:10	Lunch Break (Salon Croisette)			
14:10 – 16 :00	SOLIDIFICATION 3/6	FUNDAMENTAL 3/6	EM SHAPING...	MISCELLANEOUS
16:00 - 16:30	Coffee Break (Galerie Marta)			
16 :30 – 19:00	POSTERS SESSION (Salon Croisette)			
20:00 - 23:00	Gala Dinner (restaurant La Plage)			

### Thursday, 15, October

sessions	salon Marta1	salon Marta2	salle Royan1	salle Royan 2
8:30 - 10:20	SOLIDIFICATION 4/6	FUNDAMENTAL 4/6	ADVANCED MATERIALS 1/3	EM PARTICLES....1/2
10:20 - 10:50	Coffee Break (Galerie Marta)			
10:50 - 12:40	SOLIDIFICATION 5/6	FUNDAMENTAL 5/6	ADVANCED MATERIALS 2/3	EM PARTICLES....2/2
12:40 - 14:10	Lunch Break (Salon Croisette)			
14:10 – 16 :00	SOLIDIFICATION 6/6	FUNDAMENTAL 6/6	ADVANCED MATERIALS 3/3	HEAT TREATMENT 1/2
16:00- 16:30	Coffee Break (Galerie Marta)			
16 :30 – 18:20	EQUIPMENT	EM COLD CRUCIBLE....	OTHER EXT. FIELDS	HEAT TREATMENT 2/2

Plenary lectures

Location : Salon Marta

08 :30-10 :20 - Chair : Asai Shiego

08 :30 – 09- :00	Opening
09:00 - 09:40	<u>Wang Engang</u> Northeastern University, Shenyang, China <i>Progress of some techniques on electromagnetic metallurgy</i>
09:40 - 10:20	<u>Eckert S.</u> , Shevchenko N., Roshchupkina O., Sokolova O. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany <i>In-situ observation of dendritic solidification under the influence of natural and electromagnetically driven convection</i>

10:20 - 10:50 Coffee Break (Galerie Marta)

10 :50 – 12 :10 – Chair : Kunstreich Siebo

10:50 - 11:30	<u>Ren Z.</u> , Li X., Li Ch., Fautrelle Y., Wang J., Zhong Y., Yu J., Xuan W. Shanghai University, Shanghai, China SIMAP, Grenoble, France <i>Effects of static magnetic field on solidification of alloys</i>
11:30 - 12:10	Christophe Marchand EDF R&D, Moret sur Loing, France <i>Towards a major role for electricity in the long term ?</i>

12:10 - 14:00 Lunch Break (Salon Croisette)

14 :00 – 16 :00 – Chair : Gerbeth Gunter

14:00 - 14:40	<u>Yasuda Hideyuki</u> Kyoto University, Kyoto, Japan <i>Processing for three-dimensional alignment of FeSi<sub>2</sub> by magnetic field</i>
14:40 - 15:20	<u>Park J.</u> , Kim J.H., Kim M.G., Lee Y.J., Li T., Lee K.S., Lee J.S. RIST, Pohang, Korea Dalian University of Technology , Dalian, China Korea Institute of Materials Science, Changwon, Korea Korea Institute of Industrial Technology, Incheon, Korea <i>Continuous Casting of aluminim and copper clad ingots under electromagnetic field</i>
15:20 - 16:00	<u>Nacke B.</u> , Kichigin V., Geza V., Posniak V. Leibniz University, Hannover, Germany State Electrotechnical University, St. Petersburg, Russia <i>Continuous melting and pouring of an aluminum oxide based melt with cold crucible</i>

16:00 - 16:30 Coffee Break (Galerie Marta)

16 :30 – 18 :30 - Chairs : Wang Engang

16 :30 – 17 :10	<u>Nastac L.</u> , Zhang D., Jia S., Y. Xuan Y. The University of Alabama, Tuscaloosa, USA <i>Advances on experimental and numerical modeling of Al-based alloys and nanocomposites fabricated via ultrasonic and electromagnetic processing</i>
17 :10 – 17 :50	Chen Ruirun, <u>Guo Jingjie</u> , Ding Hongsheng, Su Yanqing, Fu Hengzhi Institute of Technology, Harbin, China <i>Progress on directional solidification of advanced materials with electromagnetic cold crucible</i>
17 :50 – 18 :30	<u>Delannoy Y.</u> , Chichignoud G., Zaidat K. SIMAP, Grenoble, France <i>EPM activities at SIMaP : focus on Solar Silicon elaboration</i>

Parallel sessions

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan2	
08:30 - 10:20	SOLIDIFICATION 1/6		FUNDAMENTAL 1/6		LM PROCESSING 1/2		MEASURING TECHNIQUES 1/2	
chairs	K. Van Russel / Jianjun Gao		Mingjiu NI / Y. Champion		Yuansheng Yang / E. Takeuchi		C. Karcher / X.D. Wang	
08 :30 – 09 :00	53393	<p>Influence of a transverse magnetic field on solidification structure during directional solidification</p> <p><u>Li Xi</u>(1), Fautrelle Yves(2), Wang Jiang(1), Gagnoud Annie (2), Ren Zhongming(1), Henri Nguyen-Thi(3)</p> <p>1 Shanghai University (China) 2 SIMAP, Grenoble (France) 3 IM2NP, Marseille (France)</p>	74792	<p>Magneto-structure transformation associated magnetocaloric effect of NiMnGa alloys</p> <p><u>Zhang Y.D.</u>(1)(2), Li Z.B.(3), Esling C. (1)(2), Sánchez-Valdés C.F.(4)(5), J. Sánchez Llamazares L.(5), Zhao X.(3), Zuo L.(3)</p> <p>1 LEM3, Metz (France) 2 DAMAS, Metz (France) 3 Northeastern University, Shenyang (China) 4 Inst Potosino de Investigación Científica y Tecnológica, Potosí (Mexico)</p>	50563	<p>Thermophysical properties of metallurgical liquids in Space using EML</p> <p><u>Fecht Hans</u> <i>Ulm University (Germany)</i></p>	76806	<p>Research activities within the Research Training Group on Lorentz Force Velocimetry and Lorentz Force Eddy Current Testing at TU Ilmenau</p> <p>Karcher Ch., Schumacher J., Fröhlich T. <i>TU Ilmenau (Germany)</i></p>
09 :00-09 :20	53083	<p>Grain refinement in Al-Si alloys induced by applying electric currents during solidification</p> <p>Zhang Yunhu, <u>Räbiger Dirk</u>, Galindo Vladimir, Franke Sven, Willers B., Eckert Sven <i>Helmholtz Zentrum Dresden-Rossendorf (Germany)</i></p>	53481	<p>Numerical study of turbulent flow and thermal field in industrial electrotechnological devices with combined power supply</p> <p>Pavlovs Sergejs(1), <u>Jakovics Andris</u>(1), Sushkovs Vadims(1), Nacke Bernard(2)</p> <p>1 University of Latvia, Riga (Latvia) 2 Leibniz University of Hannover (Germany)</p>	53548	<p>Refining effects of Al-5C master alloy working with electromagnetic and ultrasonic field on AZ31 magnesium alloy</p> <p><u>Hao Hai</u>(1), Liu Xiaoteng(1), Zhang Aimin(2)</p> <p>1 TU Dalian (China) 2 TU Liaoning (China)</p>	53141	<p>Recent progress on contactless inductive flow tomography for continuous casting in the presence of strong static magnetic fields</p> <p><u>Wondrak Thomas</u>, Ratajczak Matthias, Timmel Klaus, Stefani Frank, Eckert Sven <i>Helmholtz Zentrum Dresden-Rossendorf (Germany)</i></p>

**Oral Session Details, Wednesday October 14**

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
08 :30 – 10 :20	SOLIDIFICATION 1/6 (cont.)		FUNDAMENTAL 1/6 (cont.)		LM PROCESSING 1/2 (cont.)		MEASURING TECHNIQUES 1/2 (cont.)	
chairs	K. Van Russel / Jianjun Gao		Mingjiu NI / Y. Champion		Yuansheng Yang / E. Takeuchi		C. Karcher / X.D. Wang	
09 :20-09 :40	53540	On the RMF impact on the structure of solidifying ingots <u>Mikhailovich Boris</u> (1), Kapusta Arkady(1), Khripchenko Stanislav(2), Denisov Sergey(2), Dolgikh Veniamin(2), Pavlinov Alexander (2) 1 Ben-Gurion University of the Negev, Beer Sheba (Israel) 2 ICMM, Perm (Russia)	62640	Numerical simulation on self-assembled structures of colloidal particles through magnetic dipole-dipole interactions <u>Liu Chunwei</u> (1), Sun Zhi(2), Huang Shuigen(1), Blanpain Bart(1), Guo Muxing(1) 1 MTM, Leuven (Belgium) 2 TU Delft (Netherlands)	55843	Simulation of free surface and molten metal behavior during induction melting of an aluminium alloy Bansal A., Chapelle P.(1), <u>Waz E.</u> (2), Delannoy Y.(3), Le Brun P.(2), Bellot J.P.(1) 1 Univ. De Lorraine, Nancy (France) 2 Constellium, Voreppe (France) 3 SIMAP, Grenoble (France)	53134	Applications of ultrasonic Doppler velocimetry to flow measurements in hot liquid metals Franke S.(1), Gundrum T.(1), <u>Eckert S.</u> (1), Gerbeth G.(1), Willemetz J. C. 2) 1 Helmholtz Zentrum Dresden-Rossendorf (Germany) 2 Signal Processing SA, Savigny (Switzerland)
09 :40-10 :00	52265	The temperature effects of pulsed magnetic field on the directional solidification <u>Zhao Zhilong</u> , Gao Jianjun, Liu Lin Northwestern Polytechnical University, Xi'an (China)	53010	New concept of a modern magnetodynamic installations based on the principle of superposition of pulsating electromagnetic forces <u>Slazhniev Mykola</u> (1), Kizilova Anastasiya(1), Bogdan Kim(1), Kim Kyung Hyun(2), Sim Hyun Suk 2) 1 NAS of Ukraine, Kyiv (Ukraine) 2 Dong San Tech. Co., Gyeongnam (South Korea)	54612	Electromagnetic sensor just below CC mould by using magnetic transformation of steel <u>Hiroshi Harada</u> (1), Takehiko Toh(1), Nagashima Masaki(2) Nippon Steel & Sumitomo Metal Corp. (Japan) 1 NSSMC, Chiba (Japan) 2 NSSMC, Hyougo (Japan)	52670	Inductive measurement of thermophysical properties of metallic melts <u>Lohöfer Georg</u> DLR, Bonn (Germany)
10 :00-10 :20	53036	Physical model of Czochralski crystal growth in a horizontal magnetic field <u>Pal Josef</u> (1), Grants Ilmars(2)(1), Eckert Sven(1), Gerbeth Gunter(1) 1 Helmholtz Zentrum Dresden-Rossendorf (Germany) 2 IPUL, Salaspils (Latvia)	53718	New technologies in electromagnetic metallurgy for clean steel production <u>Wang Qiang</u> , Li Dewei, Liu Tie, Su Zhijian, Marukawa Katsukiyo, He Jicheng Northeastern University, Shenyang (China)	54514	Finite element analysis of a new furnace with travelling field inductor for induction heating, electromagnetic stirring and levitation of molten titanium alloys <u>Fireteanu V.</u> (1), <u>Mahu R.</u> (2), <u>Constantin A.I.</u> (1) 1 Univ. of Bucharest, (Romania), 2 TENSOR, Bucharest (Romania)	54577	A new device for measuring thermal conductivity and heat capacity of metallic alloys by E.M. levitation <u>Etay J.</u> (1), Diarra A.(1), Gagnoud A.(1), Garnier C.(1), Massucci S.(1), Alamir M.(2), Sulpice An.(3), Rivoirard S.(3) 1 SIMAP, 2 Gipsa-Lab, 3 CRETA Grenoble (France)
10 :20 – 10 :50	Coffee Break (Galerie Marta)							

Oral Session Details, Wednesday October 14

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
10 :50 – 12 :40	SOLIDIFICATION 2/6		FUNDAMENTAL 2/6		LM PROCESSING 2/2		MEASURING TECHNIQUES 2/2	
chairs	Z.M. Ren / A. Jakovics		F. Debray / Qiang Wang		K. Pericleous / Zuosheng Lei		G. Pottlacher / G. Berthiau	
10 :50-11 :20  KEYNOTES	54675	Synchrotron x ray, in situ study, electro magnetic pulse, solidification <u>Mi Jiawei</u> , Manuwong T., Du W. <i>University of Hull (United Kingdom)</i>	54531	Numerical Simulation of MHD Processes in the Technology of Non-crucible Induction Melting of Titanium Alloys <u>Demidovich Victor</u> (1), Khatsayuk Maxim(2), Timofeev Viktor(2), Maximov Aleksey(2), Rastvorova Irina(3) <i>1 LETI, St.Petersburg (Russia)</i> <i>2 Siberian Federal University, Krasnoyarsk (Russia)</i> <i>3 National Mineral Resources University, St.Petersburg (Russia)</i>	52651	Electromagnetic devices for continuous steel casting tundishes <u>Chaudhary Rajneesh</u> (1), Kandasamy Ravikumar(1), Seden Martin(2), Rydholm Bengt(2), Eriksson Jan-Erik(2), Yang Hongliang(2) <i>1 ABB Corporate Research Center, Bangalore (India)</i> <i>2 ABB AB/Metallurgy, Västerås (Sweden)</i>	54598	Dynamic neutron radiography of inclusions in an EM induced turbulent flow of liquid metal Scepanskis Mihails(1), Nikoluskins Raimonds(2), <u>Jakovics Andris</u> (1), Thomsen Knud(3), Sarma Martins(2), Vontobel Peter(3), Beinerts Toms(2), Kravalis Kalvis(2), Bojarevics Andris(2) <i>1 University of Latvia, Riga (Latvia)</i> <i>2 IPUL, Salaspils (Latvia)</i> <i>3 Paul Scherrer Institut, Villigen (Switzerland)</i>
11 :20-11 :40	56280	The mechanism of grain refinement of metals solidified with low voltage pulsed magnetic field <u>Yang Yuansheng</u> , Teng Yuefei, Li Yingju, Luo Tianjiao, Feng Xiaohui <i>IMR-CAS, Shenyang (China)</i>	52924	Electrically driven flows and instabilities in liquid metal batteries <u>Weier Tom</u> , Galindo Vladimir, Kasprzyk C., Stefani Frank, Weber Norbert <i>Helmholtz-Zentrum Dresden - Rossendorf (Germany)</i>	53044	Experimental study of the flow driven by combined AC magnetic fields using a novel ultrasound system <u>Pal Josef</u> (1), Cramer Andreas(1), Franke Sven(1), Eckert Sven(1), Nauber Richard(2), Thieme Norman(2), Büttner L.(2), Czarske Jürgen(2) <i>1 HelmholtzZentrum Dresden Rossendorf (Germany)</i> <i>2 TU Dresden (Germany)</i>	54681	Containerless experimental techniques to obtain thermophysical properties of liquid metals and alloys at high temperatures <u>Aziz Kirmanij</u> , Schmon Alexander, <u>Pottlacher Gernot</u> <i>TU Graz (Austria)</i>
11 :40-12 :00	55638	Microstructure development of the AZCa912 magnesium alloy solidified by the electromagnetic stirring technique <u>Li Mingjun</u> , Omura Naoki, Murakami Yuichiro, Matsui Isao, Tamura Takuya, Tada Shuji <i>AIST, Nagoya (Japan)</i>	53576	Free-surface dynamics in the Ribbon Growth on Substrate (RGS) process <u>Beckstein Pascal</u> (1), Galindo Vladimir(1), Gerbeth Gunter(1), Schönecker Axel(2) <i>1 Helmholtz-Zentrum Dresden-Rossendorf (Germany)</i> <i>2 RGS Development B.V., Broek op Langedijk (Netherlands)</i>	53500	Analysis of an electromagneto-hydrodynamic multiphase model in the ESR system with vibration electrode <u>Wang Fang</u> , Li Baokuan, Wang Qiang <i>Northeastern University, Shenyang (China)</i>	54711	Measurement of electrical conductivity of liquid metals using Lorentz force sigmometry <u>Karcher Christian</u> , Kolesnikov Yuri, Alkhalil Shata <i>TU Ilmenau (Germany)</i>

Oral Session Details, Wednesday October 14

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan2	
10:50 - 12:40	SOLIDIFICATION 2/6 (cont.)		FUNDAMENTAL 2/6 (cont.)		LM PROCESSING 2/2 (cont.)		MEASURING TECHNIQUES 2/2 (cont.)	
chairs	Z.M. Ren / A. Jakovics		F. Debray / Qiang Wang		K. Pericleous / Zuosheng Lei		G. Pottlacher / G. Berthiau	
12 :00-12 :20	54626	Continuous casting process of Incoloy800HT superalloy and its quality improvement with electromagnetic fields <u>Wang Fei</u> , Li Yinglong, Deng Anyuan, Xu Xiujie, Zhang Xingwu, Wang Engang <i>Northeastern University, Shenyang (China)</i>	53571	Effect of macro/micro flow in electrolyte on the composite electro-deposition process of Fe-nano Si and Fe- FeSi coatings in static magnetic field <u>Zhong Yunbo</u> , Zhou Pengwei, Long Qiong, Wang Huai, Ren Weili, Lei Zuo-Sheng, Ren Zhongming <i>Shanghai University (China)</i>	54518	Experimental approach to develop Multi-Mode® EMB, an advanced electromagnetic brake for thin slab casters <u>Kunstreich S.</u> (1), <u>Gautreau T.</u> (1), Ren J.Y.(1), A.Codutti(2), F.Guastini(2), Petronio M.(2), Vecchiet F.(2) <i>1 Danieli Rotelec, Bagnolet (France)</i> <i>2 Danieli Research Center, Buttrio (Italy)</i>	53113	Flow measurements in a liquid metal model of a bloom caster under the effect of rotary electromagnetic stirring <u>Eckert Sven</u> (1), Willers Bernd(1), Barna Martin(2), Reiter Jürgen(3) <i>1 Helmholtz Zentrum Dresden-Rossendorf (Germany)</i> <i>2 Johannes Kepler Univ., Linz (Austria)</i> <i>3 VAS, Leoben (Austria)</i>
12 :20-12 :40	54554	Low, voltage pulsed magnetic field, DC casting, Segregation, Magnesium alloy, Grain refinement <u>Ji H.M.</u> , Luo T.J., Cui J., <u>Yang Y.S.</u> <i>IMR-CAS, Shenyang (China)</i>	53439	Application of inductor hub to improve assembly operations using pulsed magnetic field <u>Kireeva Alena</u> , <u>Kukhar Vladimir</u> <i>Tula State University (Russia)</i>	53080	Modelling of the electromagnetic braking effect in the continuous casting process of steel <u>Timmel Klaus</u> (1), Willers Bernd(1), Kratzsch Christoph(2), Schwarze Rüdiger(2), Gerbeth Gunter(1), Eckert Sven(1) <i>1 Helmholtz Zentrum Dresden-Rossendorf (Germany)</i> <i>2 TU Bergakademie, Freiberg (Germany)</i>	53672	Expectable Forces of Lorentz Force Velocimetry in low conducting and slow flowing solutions by the use of high-Tc superconductors <u>Weidner Markus</u> , Halbedel Bernd, Rädlein Edda <i>TU Ilmenau (Germany)</i>
12:40 - 14:10	Lunch Break							

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Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
14:10 – 16 :00	SOLIDIFICATION 3/6		FUNDAMENTAL 3/6		EM SHAPING...		MISCELLANEOUS / KEYNOTES	
chairs	F. Barvinschi / R. Chaudhary		A. Potherat / Yunbo Zhong		F. Dughiero / L. Nastac		B. Paya / C. Biscarrat	
14 :10-14 :40	53543	Influence of strong magnetic field on distribution of solid particles in BiZn immiscible alloys with a metastable miscibility gap Zheng Tianxiang(1), <u>Zhong Yunbo</u> (1), Dong Licheng(1), Debray Francois(2), Beaugnon Eric(2), Fautrelle Yves(3) 1 Shanghai University (China) 2 LNCMI, Grenoble (France) 3 SIMAP, Grenoble (France)	76447	A numerical simulation for free surface MHD flows based on unstructured cartesian adaptive system Jie Zhang(1)(2), Xing-Xing Yu(1), <u>Ming-Jiu Ni</u> (1) 1UCAS, Beijing (China) 2 Jiaotong University, Xi'an (China)	53568	Electromagnetic levitation melting of metals on a large scale: simulation and experiments Spitans Sergejs(2)(1), <u>Baake Egbert</u> (1), Jakovics Andris(2) 1 Leibniz University of Hannover (Germany), 2 University of Latvia, Riga (Latvia)	55982	Electromagnetic modeling with 3D integral method <u>Gagnoud Annie</u> , Scapolan Raphaël, Du Terrail Couvat Yves <i>SIMAP, Grenoble (France)</i>
14 :40-15 :00	53538	Study on the macrosegregation behaviour of 2524 alloy flat ingot solidified under the influence of electromagnetic field Mou Dan, <u>Zuo Yubo</u> , Zhu Qingfeng, Li Lei, Cui Jianzhong <i>Northeastern University, Shenyang (China)</i>	54610	Direct numerical simulation of swirling flow control in a pipe using static non-homogenous magnetic field Dong Shuai(1), Krasnov Dmitry(2), <u>Kolesnikov Yuri</u> (2), Karcher Christian(2), Wang Xiaodong(3) 1 North China Electric Power University, Baoding (China) 2 Technische Universität Ilmenau (Germany) 3 UCAS, Beijing (China)	61573	High strain rates forming processes in Bmax - Applications and modeling methodology <u>Avrillaud Gilles</u> , Mazars Gilles, Jeanson Anne-Claire, Cuq-Lelandais Jean-Paul, Fuzeau Julien, Jimenez Joaquim <i>Bmax, Toulouse (France)</i>	53454	Adaption and verification of numerical models for gas bubble dynamics in electroconductive fluid <u>Steinberg Thomas</u> , Baake Egbert <i>Leibniz University of Hannover (Germany)</i>
15 :00-15 :20	53487	Dendritic growth velocities in undercooled melts under static magnetic fields <u>Gao Jianrong</u> (1), Liu Jia(1), Kao Andrew(2), Pericleous Koulis(2) 1 Northeastern University, Shenyang (China) 2 University of Greenwich (United Kingdom)	54461	Numerical simulation of jet-flow under streamwise magnetic field Krasnov Dmitry, <u>Kolesnikov Yuri</u> , Boeck Thomas <i>Technische Universität Ilmenau (Germany)</i>	54665	Investigation of electro-plastic effect on ferritic stainless steel AISI 430 <u>Spezzapria Mattia</u> , Forzan Michele <i>University of Padova (Italy)</i>	55776	Recent results using a magnetic flux concentrating material in a cold wall induction melting crucible <u>Haun Rob</u> <i>Retech Systems, Ukiah (United States)</i>



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Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
14:10 – 16 :00	SOLIDIFICATION 3/6 (cont.)		FUNDAMENTAL 3/6 (cont.)		EM SHAPING...(cont.)		MISCELLANEOUS / KEYNOTES (cont.)	
chairs	F. Barvinschi / R. Chaudhary		A. Potherat / Yunbo Zhong		F. Dughiero / L. Nastac		B. Paya / C. Biscarrat	
15 :20-15 :40	53448	Enhancement of slab internal quality by electromagnetic stirring of molten steel <i>Kim GooHwa</i> , Kwon S. H., Won Y. M., Lee C. H. <i>POSCO, Gyeongsangbuk-do (South Korea)</i>	54343	DNS of natural convection in liquid metal with strong magnetic fields in rectangular geometry <i>Liu Wenjun</i> (1), Krasnov Dmitry(1), Schumacher Jörg(1), Karcher Christian(1), Thess Andre(2) <i>1 Technische Universität Ilmenau (Germany)</i> <i>2 DLR, Stuttgart (Germany)</i>	77381	Aluminium electrolysis cell MHD instability modelling and verification by wireless sensor measurements <i>Bojarevics Valdis</i> (1) and Evans James W.(2)(3) <i>(1) University of Greenwich (UK)</i> <i>(2) University of California, Berkeley (US)</i> <i>(3) Wireless Industrial Technologies (US)</i>	77158	Prediction of the onset of Eurofer corrosion by streak instabilities of PbLi-liquid metal in rectangular Poiseuille flow system <i>Bouabdallah A.</i> , Debbahi S., Djebbour A., Lalaoua A., Tigrine Z. <i>USTHB, Algiers (Algeria)</i>
15 :10-16 :00	53431	Grain refinement mechanism of pure aluminum by application of pulsed magnetic field during solidification <i>Jie J.C.</i> , Chen H., Zhang Y.B., Wang T.M., Li T.M. <i>TU Dalian(China)</i>	53483	Numerical study of gas bubbles collective dynamics in the melt influenced with magnetic field <i>Jakovics Andris</i> (1), Pavlovs Sergejs(1), Baake Egbert(2), Steinberg Thomas(2), Sushkovs Vadims(1), Tatulcenkovs Andrejs(1) <i>1 University of Latvia, Riga (Latvia)</i> <i>2 Leibniz University of Hannover (Germany)</i>	54768	Review and Latest Trends in Dielectric Heating - A possibility for learning more by industrial trainees <i>Vishwakarma Shikha</i> (1), Nayak Puja(2), Vishwakarma Shilpa(1) <i>1 GG Institute of Technology, Jabalpur (India)</i> <i>2 Vishwakarma Industrial Training Centre, Jabalpur (India)</i>		
16 :00- 16 :30	Coffee Break (Galerie Marta)							

**Poster session**

**Time : 16 :30 – 19 :00**

**Location : Salon Croisette**

POSTER SESSION /1- Fundamental of EPM, MHD, Theory & Modeling

53437	Effect of preheating blanks process efficiency magnetic-pulse treatment <u>Kireeva Alena, Kukhar Vladimir</u> <i>Tula State University (Russia)</i>	54862	The annular MHD viscometer: electrical activation of Hartmann/Shercliff layers due to MHD/surface rheology coupling <u>Delacroix Jules, Davoust Laurent</u> <i>SIMAP, Grenoble (France)</i>
67854	Design of the small annular linear induction electromagnetic pump based on simulation and experiment <u>Ma Yonglin, Yang Jichu, Cai Miao, Xing Shuqing</u> <i>Inner Mongolia University of Science &amp; Technology, Baotou (China)</i>	54984	Effect of a dipolar magnetic field on the stability of spherical Taylor vortex flow <u>Lalaoua Adel, Bouabdallah Ahcene</u> <i>USTHB, Algirers (Algeria)</i>
54270	The distinction of instability and turbulence between the Taylor-Couette flow and electrically driven flow in annular channel <u>Leng Xueyuan(1)(2), Krasnov Dmitry(1), Kolesnikov Yurii(1), Li Benwen(3)</u> <i>1 Ilmenau University of Technology (Germany)</i> <i>2 Northeastern University, Shenyang (China)</i> <i>3 TU Dalian (China)</i>	56187	Modeling of electromagnetic processes in three-phase electric arc furnaces <u>Serikov Viktor, Cherednichenko Vladimir, Bikeev Roman</u> <i>Novosibirsk State Technical University (Russia)</i>
54716	Electromagnetic induction flowmeters unsusceptible to the conductivity of liquid metal <u>Priede Janis, Looney Richard</u> <i>Coventry University (United Kingdom)</i>	56557	Characterisation of elliptic vibratory magnetic field in the 2D electromagnetic calculation of linear induction pump <u>Carra Olivier</u> <i>AREVA NP, Lyon (France)</i>
62130	Finite element model of the gear induction hardening <u>Hodek Josef(1), Zemko Michal(1), Shykula Petro(2)</u> <i>1 COMTES FHT, Dobrany (Czech Republic)</i> <i>2 Miba, Dolny Kubin (Slovakia)</i>	53646	Numerical analysis of liquid metal 17Li83Pb fluid MHD effects in rectangular duct using vortex generators <u>Tigrine Zahia</u> <i>USTHB, Algirers (Algeria)</i>

POSTER SESSION /2-Induction heating, plasma processing and related heat treatment

51803	Simulation of heat generation behavior in Ti-coated ablation needle for cancer therapy using high-frequency induction technique <u>Naohara Takashi(1), Aono Hiromichi(1), Maehara Tsunehiro(1), Matsutomo Shinya(2), Hirazawa Hideyuki(2), Watanabe Yuji(3)</u> <i>1 Ehime University, Matsuyaka (Japan)</i> <i>2 National Institute of Technology, Niihama (Japan)</i> <i>3 Ehime University, Shitsukawa (Japan)</i>	52920	Behavior of non-metallic inclusions in a continuous casting tundish with channel type induction heating <u>Qiang Wang, Wenjie Rong, Baokuan Li</u> <i>Northeastern University, Shenyang (China)</i>
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### POSTER SESSION /2-Induction heating, plasma processing and related heat treatment

54487	Electromagnetic shielding in induction systems using SMC materials <u>Nemkov Valentin</u> , Goldstein Robert, Yakey Christopher, Eddir Tareq <i>Fluxtrol, Inc., Michigan (United States)</i>	54564	Design of induction heating lines using ELTA program <u>Bukanin Vladimir</u> (1), Ivanov Alexander(1), Zenkov Alexei(1), Nemkov Valentin(2) 1 <i>St. Petersburg Electrotechnical University (Russia)</i> 2 <i>Fluxtrol, Inc., Michigan (United States)</i>
71465	Prediction of the energy efficiency of an Ar-H <sub>2</sub> -O <sub>2</sub> plasma torch with Ansys Fluent <u>Vadon Mathieu</u> , Delannoy Yves, Chichignoud Guy <i>SIMAP, Grenoble (France)</i>	53663	Parameters of electric arc forming under free surface of liquid metal <u>Klementyeva Irina</u> (1), Pinchuk Mikhail(2) 1 <i>JIHT RAS, Moscow (Russia)</i> 2 <i>IEE RAS, St.-Petersburg (Russia)</i>

### POSTER SESSION /3.1- Electromagnetic melting : cold crucible, VIM, VAR,...

52921	A multiscale three-dimensional numerical simulation of electroslag remelting process <u>Baokuan Li</u> (1), <u>Qiang Wang</u> (1), Kang Deng(2) 1 <i>Northeastern University, Shenyang (China)</i> 2 <i>Shanghai University (China)</i>	56198	Energy characteristics of the induction furnace with cold crucible for melting metals <u>Ignatenko Alexey</u> , Bikeev Roman, Aliferov Alexandr, Sujashev Vladislav <i>Novosibirsk State technical University (Russia)</i>
54549	Evolution of solidified morphology in GCr15 bearing steel ingots remelted by magnetic- controlled ESR process Qiang Li, Zhong Yunbo, Wang Huai, Fang Yipeng, Lei Zuo-Sheng, Yu Jianbo, Ren Zhongming <i>Shanghai University (China)</i>		

### POSTER SESSION /3.2-Electromagnetic melting : particle removal/addition, stirring, braking, vibration,...

53017	Research on MHD process for controlling the segregation of Al-Sn alloy, <u>Slazhniev Mykola</u> , Kim Kyung Hyun, Sim Hyun Suk, Kim Se Won <i>Dong San Tech., Gyeongnam (South Korea)</i>	54440	Effect of the Electromagnetic Compound Field on Microstructure and properties of continuously cast Al-20wt%Sn alloy Wu Huixing, <u>Zhong Yunbo</u> , Wang Yingbin, Wang Huai, Zuosheng Lei, Ren Zhongming <i>Shanghai University, (China)</i>
53501	Physical modelling in CC mould driven by EMS under submerged entry nozzle clogging condition <u>Zhou Yue-Ming</u> (1), Lei Zuo-Sheng(2), Li Bin(2), Wei Ru-Jun(2), Zhong Yunbo(2), Ren Zhongming(2) 1 <i>Baosteel Central Research Institute (China)</i> 2 <i>Shanghai University (China)</i>	68311	Numerical simulation of the copper slag cleaning process <u>Yang Hongkun</u> (1), Wolters Jörg(1), Pischke Philipp(2), Soltner Helmut(1), Fröhlich Jochen(3), Eckert Sven(4) 1 <i>Forschungszentrum, Jülich, Germany</i> 2 <i>RWTH Aachen University, Germany</i> 3 <i>TU Dresden, Germany</i> 4 <i>Helmholtz-Zentrum, Dresden-Rossendorf, Germany</i>

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### POSTER SESSION /3.2-Electromagnetic melting : particle removal/addition, stirring, braking, vibration,...

53518	Mercury model on flow in continuous casting of slab with EMBR <u>Deng Kang</u> , Zhang Zhenqiang, Lei Zuo-Sheng, Ren Zhongming <i>Shanghai University (China)</i>	68318	Investigation on the removal of inclusions formed in the aluminum melt by alternating combined magnetic field <u>Li Qiu-lin</u> (1), Liu Wei(2) <i>1 Tsinghua University, Shenzhen, China</i> <i>2 Tsinghua University, Beijing, China</i>
54299	Electromagnetic stirring of liquid metal in induction crucible furnace <u>Barglik Jerzy</u> , Golak Slawomir <i>Silesian University of Technology (Poland)</i>	52432	Flow behaviors driven by a spiral permanent magnetic field <u>Wang Xiaodong</u> (1), Wang Bo(2), Na Xianzhao(2), Etay Jacqueline(3), Fautrelle Yves(3) <i>1 UCAS, Beijing (China)</i> <i>2 CISRI, Beijing (China)</i> <i>3 SIMAP, Grenoble (France)</i>

### POSTER SESSION /4-E.M. shaping, forming, mixing, ... / Magnetic or E.M. levitation

53570	The influence of the permanent magnets materials on the restoring force of a bearing using magnetic liquid Blaj Constantin, Marian Greconici, <u>Barvinschi Floricica</u> <i>Politehnica University, Timisoara (Romania)</i>	55727	Electromagnetic levitation of silicon to investigate thermodynamic behavior of phosphorous Chichignoud Guy, <u>Favre Simon</u> , Nuta Ioana, Zaidat Kader, Chatillon Christian <i>Simap, Grenoble (France)</i>
54569	Electromagnetic levitation melting of metals on a large scale. Part II: experiments <u>Spitans Sergejs</u> (1)(2), Baake Egbert(2), Jakovics Andris(1) <i>1 University of Latvia, Riga (Latvia)</i> <i>2 Leibniz University of Hannover (Germany)</i>		

### POSTER SESSION /5-Liquid metal processing : steel, aluminum, titanium, copper, magnesium,...

53515	Study on controlled segregation of Al-Sn alloys for bearings <u>Kim Kyung Hyun</u> (1), Slazhniev Mykola(1), Kim Se Won(1), Sim Hyun Suk(1), Euh Kwang Jun(2) <i>1 Dong San Tech. Co; Gyeongnam (South Korea)</i> <i>2 KIMS, Changwon (South Korea)</i>	54615	Electromagnetic grain refinement casting technology for large size ingots of high strength aluminum alloy <u>Zhao Zhihao</u> , Wang Gaosong, Zhu Qingfeng, Cui Jianzhong <i>Northeastern University, Shenyang (China)</i>
53618	The role of electromagnetic stirring in preparation of TiB <sub>2</sub> /AZ31 composite under coupled-field <u>Fang Canfeng</u> , Liu Guangxu, Wang Yingmin, Zhang Lu, Meng Linggang, Zhang Xingguo <i>TU Dalian (China)</i>	54942	500 kA pre-baked anode aluminum electrolytic cell production practice <u>Ma Qiong</u> (1), Shi Jin-liang(2) <i>1 Technical college, Lanzhou (China)</i> <i>2 Chongqing University of Science &amp; Technology (China)</i>
54366	Initial solidification control of peritectic steel using high frequency alternating magnetic field <u>Xu Xiujie</u> , Deng Anyuan, Zhang Xingwu, Wang Engang <i>Northeastern University, Shenyang (China)</i>		

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POSTER SESSION /6-Solidification, crystal growth under external field / E.M. casting

52592	The function of low frequency electromagnetic field on inhibiting the crack expending during DC casting process of 7075 Al alloy <u>Zhu Qingfeng</u> , Zhao Zhihao, Zuo Yubo, Li Lei, Cui Jianzhong <i>Northeastern University, Shenyang (China)</i>	53589	Effect of electromagnetic stirring on the solidification of Al-7wt%Si alloy: experiment and simulation <u>Nagy Csaba</u> (1)(2), Budenkova Olga(1), Du Terrail Couvat Yves(1), Fautrelle Yves(1), Roósz András(2) 1 SIMAP, Grenoble (France) 2 Miskolc University (Hungary)
53489	Incorporation of boron nitride particles into aluminum in the presence of MHD-stirring during ingot directional solidification <u>Khripchenko Stanislav</u> (1)(2), Dolgikh Veniavin(1), Denisov Sergey(1), Kolesnichenko Iliia(1)(2) 1 UB RAS, Perm (Russia) 2 Perm National Research Polytechnic University (Russia)	53793	Numerical analysis of magneto-convection of a super alloy inside a cylindrical enclosure <u>Pirmohammadi Mohsen</u> (1), Afrand Masoud(2), Hamed Mohsen(3) 1 Mapna Group, Tehran (Iran) 2 Islamic Azad University, Isfahan (Iran) 3 University of Tehran (Iran)
53519	Influence of thermoelectric effects on $\gamma$ - $\gamma'$ eutectic of a single crystal Ni-based superalloy directional solidification under a weak transverse magnetic field <u>Li Xu</u> , Wang Jun, Zhang Jiao, Han Yanfeng, Li Xi <i>Shanghai University (China)</i>	54127	Effect of axial magnetic field on the shape of copper ribbon crystals grown by Czochralski method <u>Shen Zhe</u> , Zhong Yunbo, Dong Licheng, Fan Lijun, Wang Huai, Li Chuanjun, Ren Weili, Lei Zuo-Sheng, Ren Zhongming <i>Shanghai University (China)</i>
53523	Effect of Sn addition on the electromagnetic separation of primary Si from Al-30Si alloy during solidification Zou Qingchuan, Jie Jinchuan, Dong Yong, Li Tingju <i>TU Dalian (China)</i>	54474	The effect of magnetic field on the microstructure and morphology of directionally solidified Ni-Mn-Ga alloys <u>Hou Long</u> (1), Dai Yanchao(1), Zongbin Li(2), Ren Zhongming(1), Li Xi(1) 1 Shanghai University (China) 2 Northeastern University, Shenyang (China)
53542	In-situ fabrication of aligned equiaxed materials by high magnetic field during directional solidification <u>Dafan Du</u> (1), <u>Xi Li</u> (2)(1), Fautrelle Yves (2), <u>Gagnoud Annie</u> (2), <u>Ren Zhongming</u> (1), <u>Kang Deng</u> (1) 1 Shanghai University (China) 2 SIMAP, Grenoble (France)	54543	The microstructure evolution of Fe-Si alloys solidified in a high static magnetic field Liu Chunmei, <u>Zhong Yunbo</u> , Zheng Tianxiang, Weili Ren, Zuosheng Lei, Ren Zhongming, Li Chuanjun <i>Shanghai University, (China)</i>
53565	Effect of electromagnetic stirring on the solidification microstructure of Al-12% Si Alloys Park Joonpyo, Kim Myoung Gyun, Kwan Young Kim, <u>Kim Jong Ho</u> <i>RIST, Pohang City (South Korea)</i>	60081	Segregation of impurities in silicon with turbulent stirring <u>Nehari Abdeldjelil</u> , Chichignoud Guy, Zaidat Kader, Delannoy Yves <i>SIMAP, Grenoble (France)</i>
68316	Segregation impurities in silicon under the influence of the travelling magnetic field Cablea M., <u>Zaidat K.</u> , Nouri Ab., Chichignoud G., Gagnoud A., Delannoy Y. <i>SIMAP, Grenoble (France)</i>	53434	Effect of electric current densities on microstructure and mechanical properties of a Cu-Zn alloy <u>Wang Xinli</u> , Wu Nan, Liu Meishuai, Dai Wenbin, Yan Yonghui, Zhao Xiang <i>Northeastern University, Shenyang (China)</i>

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### POSTER SESSION /6-Solidification, crystal growth under external field / E.M. casting

54548	Influence of the high static magnetic field combined with modifier on the solidification structure of Al-Si alloy <u>Chen Xu</u> (1), Zhong Yunbo(1), Dong Licheng(1), Debray Francois(2), Beaugnon Eric(2), Fautrelle Yves(3) 1 Shanghai University (China) 2 LNCMI, Grenoble (France) 3 SIMAP, Grenoble (France)	55404	A new method for calculating thermoelectric current during the solidification of alloys <u>Fan Yafu</u> (1)(2), Fautrelle Yves(2), Ren Z(1), Budenkova Olga(2), Li C(1), Ren W(1) 1 Shanghai University (China) 2 SIMAP, Grenoble (France)
54668	Influence of a low-frequency electromagnetic field on aluminum alloy slabs during horizontal direct chill casting process Li Lei(1), <u>Zhang Yudong</u> (2), Esling Claude(2), Cui Jizhong(1) 1 Northeastern University, Shenyang (China) 2 LEM3, Metz (France)		

### POSTER SESSION /7-Advanced materials processing in static or alternating magnetic field

53449	Directional solidification of metallic alloys under pulsed transverse electromagnetic force <u>Kaldre Imants</u> , Bojarevics Andris IPUL, Salaspils (Latvia)	53612	Cr-Mn codoped ZnO synthesized by hydrothermal method under high magnetic field <u>Zhong Min</u> , Li Ying, Li Wenxian, Hu Yemin, Xu Hongtao, Tariq Muhammad, Zhang Zihao Shanghai University (China)
53615	Influence of direct current on the ageing behavior of a CuCrZr alloy Wei Wang, <u>Wang Tongmin</u> , Zou Cunlei, Kang Huijun, Cao Zhiqiang, Li Tingju TU Dalian (China)		

### POSTER SESSION /8-Other processes under external fields, electrochemistry, magnetic, electric, electrostatic, microwaves,...

53429	Effects of magnetic field strength on microstructure and texture evolution in cold-rolled pure copper by magnetic field annealing <u>He Tong</u> , Zhang Jin, Zhao Xiang Northeastern University, Shenyang (China)	53553	Inductive temperature cycling of zirconium alloy – lead rod for SINQ <u>Dementjevs S.</u> (1), Wohlmuther M.(1), Sobbia R.(1), Geza V.(2) 1 Paul Scherrer Institut, Villigen (Switzerland) 2 Leibniz University Hannover (Germany)
53563	Effects of electric treatment on the microstructure of nickel-base superalloy <u>Wang Lei</u> (1), Liu Yang(1), Song Xiu(1), Xu Guohua(2), Zhao Guangpu(2) 1 Northeastern University, Shenyang (China) 2 Central Iron and Steel Research Institute, Beijing (China)		
53499	Natural convection of magnetic fluid inside a cubical enclosure under a uniform gradient magnetic field <u>Lei Zuo-Sheng</u> , Song Sheng-Yang, Xu Chun-Long, Guo Jiahong Shanghai University (China)	53934	The diffusion process of Fe-Fe10wt.%Si-Fe diffusion couple with superimposing a DC electric current Shi Yajie(1), <u>Zhong Yunbo</u> (1), Fan Lijun(1), Li Chuanjun(1), Ren Weili, Ren Zhongming Shanghai University (China)

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### POSTER SESSION /8-Other processes under external fields, electrochemistry, magnetic, electric, electrostatic, microwaves,...

53503	Modeling of electromagnetic processes in wire electric discharge machining <u>Volgin Vladimir</u> , Lyubimov Victor, Kukhar Vladimir <i>Tula State University (Russia)</i>	54336	Pulsed electric field applied to biological tissue: measurement set-up to evaluate electroporation threshold <u>Forzan Michele</u> , Bullo Marco, Dughiero Fabrizio, Sieni Elisabetta, Gobbo Renato <i>University of Padova (Italy)</i>
53504	Effect of axial magnetic field on mass transfer to cylindrical cathode under mixed convection of binary electrolyte solution <u>Volgin Vladimir</u> (1), Lyubimov Victor(1), Davydov Alexey(2) <i>1 Tula State University (Russia)</i> <i>2 IPCE RAS, Moscow (Russia)</i>	54623	Effect of gradient of high magnetic field on diffusion layer in Mg-Al diffusion couple <u>Ban Chunyan</u> , Zhao Nannan, Zhai Lulu, Shi Xuchen, Cui Jianzhong <i>Northeastern University, Shenyang (China)</i>
55844	Co-doped Cu <sub>2</sub> O film electrodeposited under magnetic field <u>Benaissa M.</u> , Daltin A.L., Chopart J.P. <i>LISM, Reims (France)</i>	63276	Approaches for modelling electromagnetic parameters in milling demonstration plant of organic agents <u>Kazak Oleg, Halbedel Bernd</u> <i>TU Ilmenau, (Germany)</i>
53485	Heat generation ability in AC magnetic field of bead-milled nanosize Y <sub>3</sub> Fe <sub>5</sub> O <sub>12</sub> and preparation of microsphere for embolization therapy <u>Aono Hiromichi</u> (1), Hirazawa Hideyuki(2), Takashi Naohara(1) <i>1 Ehime University, Matsuyama (Japan)</i> <i>2 Niihama National College of Technology (Japan)</i>	54550	Electrification of droplet by applying high-voltage for spherical silicon solar cell <u>Matsumoto Kazuho</u> (1), Toya Yusuke(2), Shimasaki Shin-Ichi(1), Taniguchi Shoji(2) <i>1 National Institute of Technology, Takamatsu (Japan)</i> <i>2 Tohoku university (Japan)</i>
54442	Exchange and removal of CS ion in clay minerals by microwave application <u>Yoshikawa N.</u> , Sumi T., Mikoshihba S., Itagaki Y., Taniguchi S. <i>Tohoku University, Sendai (Japan)</i>		

### POSTER SESSION /9-Measuring techniques in liquid metal flows and nondestructive control/wireless energy transfer (by induction)

53508	Electromagnetic technique for liquid metal flow measurement by force time-of-flight principle <u>Dubovikova Nataliia</u> , Karcher Christian, Kolesnikov Yuri <i>TU Ilmenau (Germany)</i>	53599	Contactless inductive flow tomography for a thermally driven convection problem <u>Wondrak Thomas</u> , Pal Josef, Stefani Frank, Galindo Vladimir, Eckert Sven <i>Helmholtz Zentrum Dresden – Rossendorf (Germany)</i>
53533	Lorentz force velocimetry using small-size permanent magnet systems and a multi-degree-of-freedom force/torque sensor <u>Hernández Daniel</u> , Karcher Christian <i>TU Ilmenau (Germany)</i>	53609	Sensitivity of electromagnetic method for gas bubble detection in liquid metal flows <u>Andrew Oleg</u> , Wondrak Thomas, Gundrum Thomas, Eckert Sven, Gerbeth Gunter <i>Helmholtz Zentrum Dresden-Rossendorf (Germany)</i>
53627	Contactless inductive bubble detection in a liquid metal column Thomas Gundrum(1), Phillip Büttner(1), Bachir Dekdouk(2), Anthony Peyton(2), <u>Thomas Wondrak</u> (1), Sven Eckert(1) <i>1 Helmholtz Zentrum Dresden-Rossendorf (Germany)</i> <i>2 The University of Manchester (United Kingdom)</i>	68313	Application of ultrasonic probes with acoustic wave guides for flow measurement <u>Willemetz J.C.</u> (1), Gundrum T.(2), Gerbeth G.(2), Eckert S.(2) <i>1 Signal Processing SA, Savigny (Switzerland)</i> <i>2 Helmholtz-Zentrum Dresden-Rossendorf (Germany)</i>

## Posters Session Details, Wednesday October 14

### POSTER SESSION /9-Measuring techniques in liquid metal flows and nondestructive control/wireless energy transfer (by induction)

<p>54030 Magnetic field, temperature and velocity distribution measurements in an electromagnetic induction pump using a small ferrite core coil system  <u>Goldsteins Linards</u>(1)(2)(3), Biscarrat Christine(3), Buligins Leonids(2), Fautrelle Yves(1), Platacis Ernests(4), Romancuks Alberts(4), Flerovs Aleksejs(4)  <i>1 SIMAP, Grenoble (France)</i>  <i>2 University of Latvia, Riga (Latvia)</i>  <i>3 CEA CADARACHE, Saint Paul-lez-Durance (France)</i>  <i>4 IPUL, Salaspils (Latvia)</i></p>	<p>54207 ECFM experiments and modelling in two-phase liquid metal flow  <u>Kumar M.</u>(1)(2), Bergez W.(2), Tordjeman Ph.(2), Cavarro M.(1), Paumel K.(1), Jeannot J.P.(1)  <i>1 IMFT, Toulouse (France)</i>  <i>2 CEA CADARACHE, Saint Paul-lez-Durance (France)</i></p>
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### POSTER SESSION/10-Equipment for EPM, E.M. pumps, brakes, stirrers, power sources,...

<p>53013 Developing of pragmatic models of the ponderomotive interactions in magnetodynamic installations for aluminum alloys MDN-6A  <u>Slazhniev Mykola</u>, Kizilova Anastasiya, Bogdan Kim  <i>NAS of Ukraine, Kyiv (Ukraine)</i></p>	<p>56379 Study of interfacial fluctuation of molten steel and liquid slag in continuous casting mould with vertical electromagnetic brake  <u>Li Zhuang</u>, Wang Engang, Xu Yu, Xu Lin, Li Fei, Deng Anyuan  <i>Northeastern University, Shenyang (China)</i></p>
<p>53443 A new approach to the analytical formulation of the magnetic pressure in liquid metal deformation  <u>Mirhoseini Seyyed Mohammad</u>(1)(2), Gholipour Alireza(2), Van Reusel Koen(2), Driesen Johan(2)  <i>1 Columbia University, New York (USA)</i>  <i>2 KU Leuven (Belgium)</i></p>	<p>54662 MHD study on high flow rate electromagnetic pump behavior  Fautrelle Yves(1), <u>Du Terrail Couvat Yves</u>(1), <u>Letout Sebastien</u>(1), Rey Frédéric(2), Laffont Guy(2)  <i>1 SIMAP, Grenoble (France)</i>  <i>2 CEA-CADARACHE, St Paul lez Durance (France)</i></p>
<p>53475 Modernization of casting magnetodynamic equipment  <u>Dubodelov Viktor</u>, Fikssen Vladyslav, Slazhniev Mykola, Goryuk Maksym, Skorobagatko Iuliia, Seredenko Elena, Yashchenko Olexandr  <i>PTIMA NASU, Kyiv (Ukraine)</i></p>	<p>56192 Pressure rings for contact shoes of ore-thermal furnace  <u>Vlasov David</u>, Bikeev Roman, Goreva Ludmila, Aliferov Aleksandr  <i>Novosibirsk State Technical University (Russia)</i></p>
<p>53476 Electromagnetic stirrer of liquid metal with alternate action of traveling and pulsating magnetic fields  <u>Dubodelov Viktor</u>(1), Gorislavets Yuriy(2), Glukhenkii Alexander(2), Fikssen Vladyslav(1)  <i>1 PTIMA NASU, Kyiv (Ukraine)</i>  <i>2 IE NASU, Kyiv (Ukraine)</i></p>	<p>56276 Induction machine based on a system of permanent magnets rotating around parallel axes  <u>Ivanov Sergej</u>(1), Blumbergs Ervins(2)  <i>1 IPUL, Salaspils (Latvia)</i>  <i>2 SIA Baltic titan, Riga (Latvia)</i></p>
<p>53496 Dynamic control of operational characteristics in MagnetoWeighting casting Installation (MWI) for aluminium alloy  <u>Kizilova Anastasiya</u>(1), Slazhniev Mykola(2)(1), Bogdan Kim(1), Kim Kyung Hyun(2), Sim Hyun Suk(2)  <i>1 PTIMA NASU, Kyiv (Ukraine)</i>  <i>2 Dong San Tech. Co., Gyeongnam (South Korea)</i></p>	



Parallel sessions

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
08:30 - 10:20	SOLIDIFICATION 4/6		FUNDAMENTAL 4/6		ADVANCED MATERIALS 1/2		EM PARTICLES... 1/2	
chairs	C. Esling / Yanwei Ma		F. Bay / A. Bouabdallah		Yudong Zhang / J.P. Chopart		V. Bojarevics / Y. Kolesnikov	
08 :30 – 09 :00	54435	Effects of DC electric field on single crystal growth of Ni-based superalloy <u>Yang Yuansheng</u> , Feng Xiaohui, Li Yingju, Luo Tianjiao <i>IMR-CAS, Shenyang</i>	71473	Quasi-static magnetohydrodynamic turbulence between two and three dimensions <u>Potherat Alban</u> <i>Coventry University (United Kingdom)</i>	53657	Evaluation of magnetic susceptibility difference of coagulated particles for crystal alignment <u>Iwai Kazuhiko</u> <i>Hokkaido University, Sapporo (Japan)</i>	53386	Particle tracking during melt solidification in the presence of AC magnetic field of various configurations <u>Bojarevics Valdis</u> , Pericleous Koulis <i>University of Greenwich (United Kingdom)</i>
09 :00-09 :20	53922	Thin sample alloy solidification in electromagnetic driven convection <u>Kao Andrew</u> (1), Shevchenko Natalia(2), Roshchupinka Olga(2), Eckert Sven(2), Pericleous Koulis(1) <i>1 University of Greenwich (United Kingdom), 2 Helmholtz Zentrum Dresden-Rossendorf (Germany)</i>	55711	Magnetohydrodynamic instabilities of linear induction pumps <u>Gissingier Christophe</u> (1), Rodriguez Imazio Paola(1), Fauve Stephan(1), Petrelis Francois(1), Rey Frédéric(2) <i>1 ENS, Paris (France) 2 CEA-CADARACHE, Saint Paul-lez-Durance (France)</i>	52346	Effects of Magnetic Field Intensity on Carbon Diffusion Behavior in Pure Iron in $\alpha$ -Fe temperature region <u>Wu Yan</u> , Huihui Li, Duan Guosheng, Zhao Xiang <i>Northeastern University, Shenyang (China)</i>	53564	Two indexes to evaluate the flow field in slab continuous casting mould with electromagnetic stirring <u>Lei Zuo-Sheng</u> (1), Li Bin(1), Wei Ru-Jun(1), Zhou Yue-Ming(2), Zhong Yunbo(1), Ren Zhongming(1) <i>1 Shanghai University (China) 2 Baosteel, Shanghai (China)</i>
09 :20-09 :40	54056	Simulation of fluid flow during Si single crystal growth from melt in a Si granular bed <u>Menzel Robert</u> , Abrosimov Nikolay, Riemann Helge <i>IKZ, Berlin (Germany)</i>	55630	Rising motion of a single bubble through a liquid metal in the presence of a horizontal magnetic field <u>Zhang Jie</u> (1), Ni Ming-Jiu(1), Moreau René(2) <i>1 UCAS, Beijing (China) 2 SIMAP, Grenoble (France)</i>	54660	Inductive thermography non destructive testing applied to carbon composite materials: multiphysics and multiscale modeling Bui Huu-Kien, <u>Berthiau Gerard</u> , Trichet Didier, Wasselynck Guillaume <i>Université de Nantes (France)</i>	53446	Investigation of the flow driven by an alternating magnetic field <u>Cramer Andreas</u> (1), Galindo Vladimir(1), Zennaro Marco(2), Eckert Sven(1) <i>1 Helmholtz Zentrum Dresden-Rossendorf (Germany) 2 University of Padova (Italy)</i>

Oral Session Details, Thursday 15 October

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
08:30 - 10:20	SOLIDIFICATION 4/6 (cont.)		FUNDAMENTAL 4/6 (cont.)		ADVANCED MATERIALS 1/2 (cont.)		EM COLD CRUCIBLE... 1/2 (cont.)	
chairs	C. Esling / Yanwei Ma		F. Bay / A. Bouabdallah		Yudong Zhang / J.P. Chopart		V. Bojarevics / Y. Kolesnikov	
09 :40-10 :00	53616	Growth of ferromagnetic thin film by nanoparticles in a high magnetic field <u>Li Guojian</u> , Du Jiaojiao, Wang Qiang, Ma Yonghui, He Jicheng <i>Northeastern University, Shenyang (China)</i>	54674	Numerical Modeling of the Nanodispersion during Ultrasonic and Electromagnetic Stirring Processing of Al-Based Nanocomposites Zhang D., <u>Nastac L.</u> <i>The University of Alabama, Tuscaloosa (USA)</i>	54185	Effect of static magnetic field on preparation of manganese oxides by hydrothermal process <u>Dong Licheng</u> , <u>Zhong Yunbo</u> , Shen Zhe, Zheng Tianxiang, Wang Huai <i>Shanghai University, (China)</i>	52932	Magnetically induced acoustic cavitation for production of metal matrix nano-composites <u>Grants Ilmars(2)</u> , Gerbeth Gunter(1), Kaldre Imants(2), Bojarevics Andris(2), Sarma Martins(1) <i>1 Helmholtz Zentrum Dresden - Rossendorf (Germany)</i> <i>2 IPUL, Salaspils (Latvia)</i>
10 :00-10 :20	53584	Effect of undercooling induced by magnetic fields on solidification structures of Al-26 wt% Cu hypoeutectic alloy <u>Guo Rui</u> , Li Chuanjun, He Shengya, Li Chuantao, Ren Zhongming <i>Shanghai University (China)</i>	54395	Magnetic field effects on liquid metal free convection <u>Renaudière De Vaux Sébastien(1)(2)</u> , Zamansky Rémi(1), Bergez Wladimir(1), Tordjeman Philippe(1), Bouyer Viviane(2), Piluso Pascal(2), Haquet Jean-François(2) <i>1 IMFT, Toulouse (France)</i> <i>2 CEA Cadarache, Saint Paul-lez-Durance (France)</i>	63399	Magnetoscience at the LNCMI <u>Debray Francois</u> <i>LNCMI, Grenoble (France)</i>	52949	New developments on Lorentz force velocimetry for weakly conducting fluids <u>Ebert Reschad Johann</u> , Resagk Christian <i>TU Ilmenau (Germany)</i>
10:20 - 10:50	Coffee Break (Galerie Marta)							

Oral Session Details, Thursday 15 October

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
10:50 - 12:40	SOLIDIFICATION 5/6		FUNDAMENTAL 5/6		ADVANCED MATERIALS 2/3		EM PARTICLES... 2/2	
chairs	H. Yasuda / O. Budenkova		A. Jardy / S. Le Bourdier		V. Demidovich / N. Dropka		V. Dudodelov / B. Mikhailovich	
10 :50-11 :20	56126	Preliminary study on molten silicon velocity distribution during the directional solidification into i-DSS furnace <u>Dughiero Fabrizio</u> , Forzan Michele, Sempredoni Nicola, Tolomio Alessandro University of Padova (Italy)	54478	How accurate is computer simulation of induction systems? <u>Valentin Nemkov</u> Fluxtrol, Inc. Michigan (United States)	53397	Metal matrix nanocomposite production using contactless electromagnetic interaction <u>Bojarevics Andris</u> (1), Beinerts Toms(1), Kaldre Imants(1), Grants Ilmars(2)(1), Gerbeth Gunter(2) 1 IPUL, Salaspils (Latvia) 2 Helmholtz Zentrum-Dresden Rossendorf (Germany)	52434	Lorentz Force Particle Analyzer - Prototype experiments and numerical models magnetic field <u>Wang Xiaodong</u> (1), Thess Andre(2), Moreau Rene(3), Tan Yanqing(1), Tao Zhen(1), Dai Shangjun(1) 1 UCAS, Beijing (China) 2 DLR-Stuttgart (Germany) 3 SIMAP, Grenoble (France)
11 :20-11 :40	54625	Experimental analysis of the effect of electromagnetic stirring on the solidification process of the Sn-10wt.%Pb alloy <u>Hachani Lakhdar</u> (1), <u>Zaidat Kader</u> (2), Fautrelle Yves(3) 1 University of Laghouat (Algeria) 2 SIMAP, Grenoble (France)	54098	Electromagnetic characterisation of magnetic steel alloys with respect to the temperature <u>Paya Bernard</u> , Teixeira Philippe EDF R&D, Moret sur Loing (France)	54573	The effect of magnetic field on metal anodizing behaviour <u>Kozuka Toshiyuki</u> , Honda H., Fukuda S., Kawahara M. Kumamoto University (Japan)	54546	Separation efficiency of inclusion particles from liquid aluminum by electromagnetic cyclone separator <u>Shimasaki Shin-Ichi</u> (1), Taniguchi Shoji(2) 1 National Institute of Technology, Takamatsu (Japan) 2 Tohoku University, Sendai (Japan)
11 :40-12 :00	54443	Effects of Electromagnetic Stirring on Cast Structure of High-Carbon High-Speed Steel <u>Deng Anyuan</u> , Yin Xiaoqiang, Yin Chuanqi, Wang Engang Northeastern University, Shenyang (China)	53909	RMF-driven spin-up flow in a rectangular cavity <u>Galindo Vladimir</u> (1), Nauber Richard(2), Franke Sven(1), Rábiger Dirk(1), Czarske Jürge(2), Eckert Sven(1) 1 Helmholtz Zentrum Dresden - Rossendorf (Germany) 2 TU Dresden (Germany)	53773	Evolution of the droplet in ESR process under a transverse static magnetic field <u>Wang Huai</u> , Zhong Yunbo, Li Qiang, Fang Yipeng, Lei Zuo-Sheng Shanghai University (China)	74246	Electromagnetic processing from AC to DC field - A way for process improvement and innovation <u>Dumont Michael</u> , Ernst Roland(2), Fautrelle Yves(2), Etay Jacqueline(2) 1 JAM, Grenoble (France) 2 SIMAP, Grenoble (France)

Oral Session Details, Thursday 15 October

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
10:50 - 12:40	SOLIDIFICATION 5/6 (cont.)		FUNDAMENTAL 5/6 (cont.)		ADVANCED MATERIALS 2/3 (cont.)		EM PARTICLES... 2/2 (cont.)	
chairs	H. Yasuda / O. Budenkova		A. Jardy / S. Le Bourdier		V. Demidovich / N. Dropka		V. Dudodolov / B. Mikhailovich	
12 :00-12 :20	53583	Control of the crystal orientation behaviour of RFe2-based alloys (R: rare earth) by high magnetic fields <i>Liu Tie, Gao Pengfei, Wang Qiang, Dong Meng, He Jicheng Northeastern University, Shenyang (China)</i>	54588	On the influence of a DC magnetic field upon a bubble <i>Tarpagkou Roza(1), Davoust Laurent(1), Doche Olivier(2) 1 SIMAP, Grenoble (France) 2 LEPMI, Grenoble (France)</i>	53549	Effect of Electromagnetic Stirring on Microstructure and Mechanical Properties of the Bulk CoFeNiMoxVy High Entropy Alloys <i>Li Jiang, Zhiqiang Cao, Tingju Li TU Dalian (China)</i>	71466	Influence of thermoelectric magnetic effect on the structure formation of near-eutectic alloys during magnetic field assisted directional solidification <i>Wang Jiang(1)(2), Fautrelle Yves, Li Xi, Zhong Yunbo, Ren Zhongming 1 Shanghai University (China) 2 SIMAP, Grenoble (France)</i>
12 :20-12 :40	53647	Crystallization of gallium in a traveling magnetic field as a model experiment <i>Dadzis Kaspars(1), Lukin Gleb(2), Meier Dagmar(2), Bönisch Paul(1), Sylla Lamine(1), Pätzold Olf(2) 1 SolarWorld Innovations GmbH, Freiberg (Germany) 2 TU Bergakademie Freiberg (Germany)</i>	54317	Application of travelling magnetic fields in metallurgical furnaces for reducing temperature difference in the molten metal <i>Oborin Pavel, Khripchenko Stanislav ICMM, Perm (Russia)</i>	53498	Coarsening research of 2D ferro-foam under magnetic gravity compensation <i>Lei Zuo-Sheng, Wang Song-Bao, Shi Yong-Chao, Guo Jiahong Shanghai University (China)</i>		
12:40 - 14:10	Lunch Break (Salon Croisette)							

Oral Session Details, Thursday 15 October

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
14:10 – 16 :00	SOLIDIFICATION 6/6		FUNDAMENTAL 6/6		ADVANCED MATERIALS 3/3		INDUCTION HEATING 1/2	
chairs	T.J. Li / Y. Delannoy		E. Baake / N. Yoshikawa		A. Gagnoud / L. Buligins		P. Brun / G. Chichignoud	
14 :10-14 :40	52925	Effect of rotating magnetic field and manganese on the formation of iron-containing intermetallic compounds in Al-Si alloy <u>Zhang Yubo</u> , Svyntarenko Kateryna, Zou Qingchuan, Jie Jinchuan, Li Tingju <i>TU Dalian (China)</i>	54451	Electrocapillary phenomena in material <u>Takeuchi E.</u> , Konishi H., Kawabata H., Ono H. <i>Osaka University (Japan)</i>	76064	Modelling of solid state forming processes involving electromagnetic couplings <u>Bay François</u> , Jeanson A.C., Alves J. <i>MINES ParisTech, Sophia-Antipolis (France)</i>	54311	Induction hardening of small gear wheels made of steel 50CrMo4 <u>Barglik Jerzy</u> , Smalcerz Albert, Smagór Adrian <i>Silesian TU, Katowice (POLAND) (Poland)</i>
KEYNOTES								
14 :40-15 :00	53567	Effects of pulsed magnetic field on microsegregation of solute elements in a Ni-based single crystal superalloy <u>Yingju Li</u> , Yuefei Teng, Xiaohui Feng, Yuansheng Yang <i>IRM-CAS, Shenyang (China)</i>	53558	Excitation of oscillations in the melt by frequency modulated TMF <u>Mikhailovich Boris</u> , Kapusta Arkady, Levy Avi <i>Ben-Gurion University of the Negev, Beer Sheba (Israel)</i>	54457	Insights into the phase diagram of the CrMnFeCoNi high entropy alloy using electromagnetic melting and casting Laurent-Brocq Mathilde(1), Perrière Loïc(1), Sauvage Xavier(2), <u>Champion Yannick</u> (1) 1 <i>ICMPE-UPEC, Thiais (France)</i> 2 <i>Université de Rouen (France)</i>	60931	100 kW heat recovery test bench to collect induction losses <u>Paya Bernard</u> , De Kepper Bernard <i>EDF R&amp;D, Moret sur Loing (France)</i>
15 :00-15 :20	53574	Scale-up of DS-silicon growth process under TMF <u>Dropka N.</u> , Ervik T., Kiessling F.M. <i>IKZ, Berlin (Germany)</i>	54381	Modelling of large displacements and large strains in coupled electromagnetic/solid mechanics/heat transfer problems <u>Alves José</u> (1), Barlier Julien(2), Marie Stephane(2), Beraudo Christine(2), Bay François(1) 1 <i>MINES ParisTech, Sophia Antipolis (France)</i> 2 <i>Transvalor, Mougins (France)</i>	52837	Significantly improved multiferric properties of BiFeO3 by magnetic field annealing <u>Ma Yanwei</u> , Zhang Shuxia <i>CAS, Beijing (China)</i>	54511	Performance Prediction of Induction Hardened Axle Shafts <u>Nemkov Valentin</u> (1), Li Charlie(2), Fett Gregory(3), Jackowski John(1), Ferguson Lynn(2), Goldstein Robert(1) 1 <i>Fluxtrol, Inc., Auburn Hills (United States)</i> 2 <i>Dante Solutions, Cleveland (United States)</i> 3 <i>Dana Corporation, Maumee (United States)</i>

Oral Session Details, Thursday 15 October

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
14:10 – 16 :00	SOLIDIFICATION 6/6 (cont.)		FUNDAMENTAL 6/6 (cont.)		ADVANCED MATERIALS 3/3 (cont.)		INDUCTION HEATING 1/2 (cont.)	
chairs	T.J. Li / Y. Delannoy		E. Baake / N. Yoshikawa		A. Gagnoud / L. Buligins		P. Brun / G. Chichignoud	
15 :20-15 :40	55458	Numerical modelling of thermoelectric magnetic effects in solidification <u>Du Terrail Couvat Yves</u> , Gagnoud Annie, Brasiliano Diego, Budenkova Olga, Fautrelle Yves <i>SIMAP, Grenoble (France)</i>	54590	3D simulation of Rayleigh-Bénard convection under a vertical magnetic field Yu X.-X., Zhang J., <u>Ni Ming-Jiu</u> <i>UCAS, Beijing (China)</i>	53433	Simultaneous Induction Heating and Electromagnetic Stirring of a Molten Glass Bath Fireteanu V.(1), <u>Rousset E.</u> (2), Chauvin E.(3), Chouard N.(3) 1 <i>Politehnica University, Bucharest (Romania)</i> 2 <i>AREVA LCV-Marcoule, Bagnols-sur-Cèze (France)</i> 3 <i>AREVA, Paris (France)</i>	53161	Detailed 3-D numerical investigation of continuous longitudinal flux heating for thin strips Dietrich A., Schülbe H., Nacke B. <i>Leibniz Universität Hannover (Germany)</i>
15 :40-16 :00	53630	Direct observation of solutal convection during solidification of Sn-50wt.%Pb alloy under traveling magnetic field Cao Fei(1), <u>Wang Tongmin</u> (1), Yang Fenfen(1), Kang Huijun(1), Xiao Tiqiao(2), Li Tingju(1) 1 <i>TU Dalian (China)</i> 2 <i>Shanghai CAS (China)</i>	53408	Numerical analysis of MHD effects resulting from spatial variations of high magnetic fields applied to a rectangular duct flow <u>Stelian Carmen</u> <i>SIMAP, Grenoble (France)</i>			52349	Development of plasma heating and electromagnetic stirring in tundish <u>Yang Hongliang</u> (1), Abiona Emmanuel(1), Chaudhary Rajneesh(2), Kandasamy Ravikumar(2), Eriksson Jan-Erik(1) 1 <i>ABB AB/Met., Västerås (Sweden)</i> 2 <i>ABB Corporate Research Center, Bangalore (India)</i>
16 :00 - 16:30	Coffee Break (Galerie Marta)							

Oral Session Details, Thursday 15 October

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
16 :30 – 18:20	EQUIPMENT		EM COLD CRUCIBLE...		OTHER EXT. FIELDS		INDUCTION HEATING 2/2	
chairs	J. Barglik / A. Cramer		V. Volgin / R. Ernst		M. Dumont / K. Zaidat		Y. Du Terrail / V. Nemkov	
16 :30-17 :00	53471	Innovative combinations of MHD technologies and original electromagnetic devices for highly efficient casting on CCM <u>Dubodelov Viktor</u> (1), Smirnov Oleksiy(1), Louhenkilpi Seppo(2), Kolesnichenko Anastacia (3) 1 PTIMA NASU, Kyiv (Ukraine) 2 Aalto University (Finland) 3 Net Shape Cast Ukraine Ltd., Kyiv (Ukraine)	54388	Observation of the electric arc behaviour in VAR <u>Chapelle Pierre, Jardy Alain</u> Institut Jean Lamour, Nancy (France)	76033	Crystals sound-fields and magnets <u>Pericleous Koulis</u> University of Greenwich	58842	Energy recovery methodology in industrial processes Le Bourdieu Solene(1), Pelloux-Prayer Sandrine(1), Zoughaib Assaad(2) 1 EDF R&D Division, Moret sur Loing (France) 2 MINES ParisTech, Palaiseau (France)
KEYNOTES								
17 :00-17 :20	53482	Application of ring method to measure surface tensions of liquids in high magnetic field <u>Li Chuanjun, Ren Zhongming, Chen Long, Guo Rui, Xuan Weidong, Ren Xingfu</u> Shanghai University (China)	54589	Numerical simulations in the development of the French radioactive waste vitrification processes using induction furnace Sauvage Emilien(1), Brun Patrice(1), Bonnetier Armand(1), Lacombe Jacques(1), Didierlaurent R.(2) 1 CEA-Marcoule (France) 2 AREVA, Marcoule (France)	54462	Cu-doped ZnO deposits obtained by magnetoelectrodeposition Benaissa Manel , Daltin Anne-Lise, Gilliot M., <u>Chopart Jean-Paul</u> URCA-LISM, Reims (France)	55726	E-H mode transition of an inductively coupled plasma torch at atmospheric pressure <u>Chichignoud Guy</u> (1), Delannoy Yves(1), Cocco François(2), Rivat Pascal(2), Natale Luigi(3) 1 SIMAP, Grenoble(France) 2 FerroPEM, Chambéry (France) 3 SAET, Leini (Italy)
17 :20-17 :40	53502	Features of functioning of magnetodynamic tundish at continuous casting of steel <u>Dubodelov Viktor, Smirnov Oleksiy, Goryuk Maksym, Pogorsky Viktor, Seredenko Vladimir, Buryak Viktoriya</u> PTIMA NASU, Kyiv (Ukraine)	53514	Large scale cold crucible levitation melting furnace for titanium <u>Saito Katsunori, Yamamoto Kazumi, Okumura Teppei</u> Daido Steel Co., Nagoya (Japan)	53590	Suppressed interdiffusion behavior of Fe/Fe-Si alloy under static magnetic field <u>Fan Lijun, Zhong Yunbo, Xu Yulai, Shen Zhe, Zheng Tianxiang, Ren Zhongming</u> Shanghai University (China)	54664	Multiphysical-multiscale fem simulation of contour induction hardening on aeronautical gears <u>Spezzapria Mattia, Forzan Michel, Dughiero Fabrizio</u> University of Padova (Italy)

Oral Session Details, Thursday 15 October

Room	salon Marta1		salon Marta2		salle Royan1		salle Royan 2	
16 :30 – 18:20	EQUIPMENT (cont.)		EM COLD CRUCIBLE...(cont.)		OTHER EXT. FIELDS (cont.)		INDUCTION HEATING 2/2 (cont.)	
chairs	J. Barglik / A. Cramer		V. Volgin / R. Ernst		M. Dumont / K. Zaidat		Y. Du Terrail / V. Nemkov	
17 :40-18 :00	54659	MHD study on high flow rate electromagnetic pump performances Fautrelle Yves(1), Du Terrail Couvat Yves(1), <u>Letout Sebastien(1)</u> , Rey Frédéric(2), Guy Laffont(2) 1 SIMAP, Grenoble (France) 2 CEA-Cadarache, St Paul lez Durance (France)	62066	High frequency multiphase travelling field configuration for direction controlled EM forces production <u>Ernst Roland</u> , Garnier Christian SIMAP, Grenoble (France)	54444	High frequency electromagnetic field energy application to materials' processing and green technology <u>Yoshikawa Noboru</u> Tohoku University, Sendai (Japan)	60937	Case study of energy recovery in workshops using induction heating systems Breville Thierry(1), Thiériot Hubert(2), Neau Yves(3), Pelloux-Prayer Sandrine(3), <u>Payà Bernard(3)</u> 1 ATYS CONSULTING Group, Grenoble (France) 2 MINES ParisTech, Palaiseau (France) 3 EDF R&D, Moret sur Loing (France)



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