



**8th International Conference
on High Temperature Capillarity
(HTC-2015)
May 17-21, 2015 Bad-Herrenalb,
Germany**

PROGRAMME

Chairperson

Boris Straumal

Karlsruhe Institute of Technology, Germany & Institute of
Solid State Physics of Russian Academy of Sciences,
Russia

Horst Hahn

Karlsruhe Institute of Technology, Germany

International scientific committee (alphabetically)

- [Simeon Agathopoulos](#) (*Greece*)
 - [W. Craig Carter](#) (*USA*)
- [Dominique Chatain](#) (*France*)
 - [Hidetoshi Fujii](#) (*Japan*)
 - [George Kaptay](#) (*Hungary*)
 - [Joonho Lee](#) (*Korea*)
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Conference Secretaries

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18:00-21:00	Sunday 17 May 2015 Welcome party
	Monday 18 May 2015
9:00-9:20	Opening ceremony (H. Hahn, A. Passerone, B. Straumal)
	Morning session: Chairperson A. Passerone, G. Kaptay
9:20-10:00	Invited talk: Denis Camel , B. Drevet and N. Eustathopoulos CEA, Institut National de l'Energie Solaire, France The role of capillarity in the processing of photovoltaic silicon
10:00-10:20	N. Sobczak ^{1,2} , M. Homa ¹ , P. Turalska ¹ , G. Bruzda ¹ , R. Nowak ¹ , I. Kaban ³ , N. Mattern ³ , J. Eckert ^{3,4} High temperature interaction of liquid Gd with TiO₂, Y₂O₃ and ZrO₂ substrates ¹ Foundry Research Institute, Cracow, Poland ² Motor Transport Institute, Warsaw, Poland ³ IFW Dresden, Institute for Complex Materials, Dresden, Germany ⁴ TU Dresden, Institute of Materials Science, Dresden, Germany
10:20-10:40	E.E. Glickman, D. Fuks , N. Froumin, N. Frage Kink mechanism of the doping-induced spreading of the melt in the non-reactive wetting system Ben Gurion University of the Negev, Beer-Sheva, Israel
10:40-11:20	Coffee break
11:20-11:40	R. Nowak ¹ , N. Sobczak ¹ , G. Bruzda ¹ , J. Wojewoda-Budka ² , M. Homa ¹ Wettability and reactivity in liquid Al on ZrB₂ substrate ¹ Foundry Research Institute, Cracow, Poland ² Institute of Metallurgy and Materials Science PAS, Cracow, Poland
11:40-12:00	U.E. Klotz ¹ , Yu. Plevachuk ² Thermophysical properties of Pt-rich alloys measured by sessile drop experiments ¹ Research Institute for Precious Metals and Metals Chemistry (fem), Schwaebisch Gmuend, Germany ² Department of Metal Physics, Ivan Franko National University, Lviv, Ukraine
12:00-12:20	T. Gancarz , P. Bobrowski, J. Pstruś, S. Pawlak Wetting and interfacial chemistry of SnZnNa alloys on Cu substrates Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Krakow, Poland
12:20-12:40	A. Tandjaoui ¹ , M. Cherif ^{2,3} , L. Carroz ^{3,4} , J. Sanchez ² , R. Reboud ² , C. Garnier ² , T. Duffar ² On the investigation of liquid oxides on refractory substrates using sessile drop method for directional solidification processes ¹ Laboratoire de Mécanique de Lille (UMR CNRS 8107), Ecole Centrale de Lille, Villeneuve d'Ascq, France ² SIMaP-EPM, Grenoble-INP-CNRS-UJF, Saint Martin d'Hères, France ³ SNECMA Villaroche, Réau, France ⁴ RSA, Jarrie, France
12:40-13:00	Z. Weltsch ^{1,2} , G. Kaptay ³ , J. Hlinka ² Wettability of Graphite Substrates by Copper-Tin Alloys ¹ Department of Materials Technology, Faculty of Mechanical Engineering and Automation, Kecskemét College, Kecskemét, Hungary

	<p>²Budapest University of Technology and Economics, Department of Automobiles and Vehicles Manufacturing, Budapest, Hungary</p> <p>³BAY Research Foundation and the University of Miskolc, Department of Nanomaterials and Department of Nanotechnology, Miskolc, Hungary</p>
13:00-15:00	Lunch
15:00-15:40	<p>Evening session: Chairperson N. Sobczak, D. Camel</p> <p>Invited talk: Eiichi Takeuchi Graduate School of Engineering, Osaka University, Osaka, Japan Electrocapillary phenomena and chemical reaction at the ionic solution /liquid metal interface</p>
15:40-16:00	<p>Brazing of graphite to Cu with (Cu-50TiH₂)+C composite filler Y. Mao¹, S. Wang¹, P. Zhao¹, B. Guo¹, Z. Ma¹, Q. Deng¹, Y. Zhang² ¹Key Laboratory of Plasma Chemistry and Advanced Materials of Hubei Province, Wuhan Institute of Technology, Wuhan, China ²Zhuzhou Cemented Carbide Cutting Tools Co., Ltd., Zhuzhou Hunan, China</p>
16:00-16:20	<p>A. Rossos, K. Leontaris, A. Karantzalis, A. Lekatou, D. Gournis, S. Agathopoulos Nano-composites of carbon nanotubes (CNT): Sn-filled nanowires and CNT-reinforced Al Department of Materials Science and Engineering, University of Ioannina, 451 10 Ioannina, Greece</p>
16:20-17:00	Coffee break
17:00-17:40	<p>Invited talk: Igor Konyashin Element Six GmbH, Burghaun, Germany High temperature capillarity in hardmetal surface layers: theory and practice</p>
17:40-18:00	<p>A. Yakymovych, A. Roshanghias and H. Ipser Effects of minor Co nano-particles additions on surface and thermodynamic properties of the liquid Sn-3.8Ag-0.7Cu lead free solder Department of Inorganic Chemistry (Materials Chemistry), University of Vienna, Währinger Str. 42, Vienna, 1090 Austria</p>
18:00-18:20	<p>S. Amore¹, F. Valenza¹, D. Giuranno¹, R. Novakovic¹, E. Ricci¹, G. Dalla Fontana², L. Battezzati² Thermophysical properties of some Ni-based superalloys in the liquid state relevant for solidification processing ¹Consiglio Nazionale delle Ricerche, Istituto per l'Energetica e le Interfasi (CNR-IENI), Genova (Italy) ²Università di Torino, Dipartimento di Chimica, Torino, Italy</p>
18:20-18:40	<p>X.S. Ning, Y. Liu, G.C. Li, B. Wang, S. Li, N. Bi A super wetting phenomenon of molten aluminum on alumina revealing in dip coating process State Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Haidian district, Beijing, 100084, China</p>
18:40-19:00	<p>T. Urai¹, M.Kamai¹, H.Fujii¹, C.Masuda² Effect of ultrasonic vibration on contact angle between water and PTFE ¹Joining and Welding Research Institute, Osaka University, Osaka, Japan ²Kagami Memorial Research Institute for Materials Science and Technology, Waseda University, Tokyo, Japan</p>
19:00	Dinner

Tuesday 19 May 2015	
	Morning session: Chairperson J. Janczak-Rusch, E. Louis
9:00-9:40	Invited talk: Rada Novakovic Institute for Energetics and Interphases- IENI-CNR, Genoa, Italy Modelling of thermophysical properties of metallic melts
9:40-10:00	M. Ben Said ¹ , F.Wang ^{1,2} , M. Selzer ^{1,2} , B. Nestler ^{1,2} Oscillatory modes of solutal Marangoni convection and resonance of interfacial waves in immiscible liquid metals ¹ Institute of Applied Materials, Karlsruhe Institute of Technology, Karlsruhe, Germany ² Institute of Materials and Processes, Karlsruhe University of Applied Sciences, Karlsruhe, Germany
10:00-10:20	J. Brillo , G. Kolland Surface tension of liquid Al-Au alloys Institut für Materialphysik im Weltraum, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Köln, Germany
10:20-10:40	J. Han, J. Lee Effect of oxygen transfer on the surface tension of liquid Ag-Cu eutectic alloy Department of Materials Science and Engineering, Korea University, Seoul,
10:40-11:20	Coffee break
11:20-12:00	Invited talk: Shmuel Hayun Department of Materials Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel Influence of external electric field and magnesium aluminate spinel stoichiometry on cation distribution and surface properties
12:00-12:20	G. Kaptay On the partial surface tension of components of a solution Bay Zoltan Ltd for Applied Research, Miskolc, Hungary
12:20-12:40	K. Nakajima , P.G. Jönsson Evaluation of oxide and nitride particles' dispersion potencies in liquid iron/steel Department of Materials Science and Engineering, KTH Royal Institute of Technology, Stockholm, Sweden
12:40-13:00	On the instability of a composed liquid cylinder caused by solutal Marangoni convection in immiscible liquids F. Wang ¹ , B. Nestler ¹ Institute of Materials and Processes, Karlsruhe University of Applied Sciences, Karlsruhe, Germany ² Institute of Applied Materials, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany
13:00-15:00	Lunch

	Evening session: Chairperson E. Rabkin, P. Nikolopoulos
15:00-15:40	Invited talk: Jolanta Janczak-Rusch EMPA (Swiss Federal Laboratories for Materials Science and Technology), Dübendorf, Switzerland The wetting phenomena in micro- and nanojoining technologies
15:40-16:00	S. Gambaro ¹ , M.L. Muolo ¹ , F. Valenza ¹ , L. Esposito ² , J. Hostasa ^{2,3} , A. Passerone ¹ Joining of transparent YAG (Y₃Al₅O₁₂): study of wetting , reactivity and brazing in the system YAG/ AgCuTi / Ti6Al4V ¹ Institute for Energetics and Interphases- IENI-CNR, Genoa, Italy ² Institute of Science and Technology of Ceramics-ISTEC-CNR,, Faenza, Italy ³ Department of Glass and Ceramics, ICT, Prague, Czech Republic.
16:00-16:20	N. Saito ¹ , K. Honda ¹ , K. Nishimura ¹ , C. Melandri ² , L. Esposito ² , K. Nakashima ¹ Joining of ZrB₂-MoSi₂ composite using Metallic Interlayer ¹ Department of Materials Science and Engineering, Kyushu University, Fukuoka, Japan ² Institute of Science and Technology for Ceramics, Faenza, Italy
16:20-17:00	Coffee break
17:00-17:40	E. Louis ^{1,2} , J.A. Miralles ¹ , J.M. Molina ¹⁻³ High temperature infiltration at low overpressures: Darcy's law, the slug-flow hypothesis and percolation ¹ Departamento de Física Aplicada, Universidad de Alicante, Alicante, Spain ² Instituto Universitario de Materiales de Alicante (IUMA) and Unidad Asociada del Consejo Superior de Investigaciones Científicas, Universidad de Alicante, Alicante, Spain ³ Departamento de Química Inorgánica de la Universidad de Alicante, Universidad de Alicante, Alicante, Spain
17:40-18:00	A. Léger ¹ , J.M. Molina-Jorda ² , G. Schneider ¹ , L. Weber ¹ , W.C. Carter ³ , A. Mortensen ¹ Capillarity in pressure infiltration: influence of percolation and wetting angle. ¹ Laboratory of Mechanical Metallurgy, Institute of Materials, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland ² Dpto. Química Inorgánica, University of Alicante, San Vicente del Raspeig, Spain ³ Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge MA, USA
18:00-19:00	Poster session
19:00	Dinner

Wednesday 20 May 2015	
	Morning session: Chairperson W.C. Carter, A. Mortensen
9:00-9:40	Invited talk: Timofey Frolov University of California Berkeley, Department of Materials Science and Engineering Capillary effects in nanowire growth
9:40-10:00	R.V. Zucker , W.C. Carter, C.V. Thompson Capillary-driven shape instabilities in solid thin films Massachusetts Institute of Technology, Department of Materials Science and Engineering, Cambridge, MA, USA
10:00-10:20	S.N. Zhevnenko , A.K. Khayrullin Surface Free Energy, Segregation and Surface Diffusion in Cu-Based Solid Solutions National University of Science and Technology «MISIS», Moscow, Russia
10:20-10:40	A. Vaskevich ¹ , A.B. Tesler ¹ , T.B. Bendikov ² , L. Chuntunov ³ Unidirectional metal transfer in heterometallic ensemble of nanoparticles ¹ Department of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel ² Department of Chemical Research Support, Weizmann Institute of Science, Rehovot, Israel ³ Schulich Faculty of Chemistry, Technion, Technion City, Haifa, Israel
10:40-11:20	Coffee break
11:20-11:40	J. Wojewoda-Budka ¹ , K. Stan ¹ , R. Nowak ² , N. Sobczak ² High temperature reactivity and wettability characteristics of Al/ZnO system depending on the zinc oxide single crystal orientation ¹ Institute of Metallurgy and Materials Science, Polish Academy of Sciences, Cracow, Poland ² Foundry Research Institute, Cracow, Poland
11:40-12:00	Measuring of angles in multi-phase systems using phase-field simulations J. Hötzer ^{1,2} , O. Tschukin ¹ , M. Berghoff ¹ , M. Jainta ¹ , M. Ben Said ¹ , D. Schneider ¹ , G. Barthelemy ¹ , N. Smorchkov ¹ , M. Selzer ^{1,2} , B. Nestler ^{1,2} ¹ Institut für Angewandte Materialien, Computational Materials Science (IAM-CMS), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany ² Institute of Materials and Processes, Karlsruhe University of Applied Sciences, Karlsruhe, Germany
12:00-12:20	M. Caccia ¹ , S. Amore ² , D. Giuranno ² , R. Novakovic ² , E. Ricci ² , J. Narciso ¹ Wetting behavior and interfacial reactions in the Si-Co/C system ¹ Instituto Universitario de Materiales de Alicante (IUMA), Universidad de Alicante, Alicante, Spain ² Institute for Energetics and Interphases- IENI-CNR, Genoa, Italy
12:20-12:40	Decohesion and structural instability of gold thin films driven by mercury spreading T.J. Singler ¹ , V. Bromberg ¹ , S. Ma ¹ , Y. Efraim ² , H. Taitelbaum ² ¹ Department of Mechanical Engineering, Material Science and Engineering, State University of New York at Binghamton, USA ² Department of Physics, Bar-Ilan University, Israel

12:40-13:00	A. Camarano , J.M. Molina, J. Narciso Fabrication and characterization of SiC-FeSi₂ composites obtained by reactive infiltration Instituto Universitario de Materiales de Alicante (IUMA), Universidad de Alicante, Apdo. 99, 03080 Alicante, Spain
13:00-15:00	Lunch
15:00-15:40	Evening session: Chairperson L. Shvindlerman, R. Novakovic Invited talk: Jongpil Ye Inha University, Incheon, Korea Fabrication of ordered arrays of micro- and nanoscale features via templated solid-state dewetting of single-crystal films
15:40-16:00	Spontaneous and assisted solid-state dewetting of Si and SiGe nanostructures M. Abbarchi ¹ , M. Naffouti ^{1,4} , B. Vial ² , A. Benkouider ¹ , L. Lermusiau ³ , L. Favre ¹ , A. Ronda ¹ , S. Bidault ¹ , I. Berbezier ¹ , N. Bonod ² ¹ CNRS, Aix-Marseille Université, Centrale Marseille, IM2NP, UMR 7334, Marseille, France, ² CNRS, Aix-Marseille Université, Centrale Marseille, Institut Fresnel, UMR 7249, Marseille, France, ³ Institut Langevin, ESPCI ParisTech, CNRS UMR 7587, Paris, France ⁴ Laboratoire de Micro-opto électronique et Nanostructures, Faculté des Sciences de Monastir, Monastir, Tunisia
16:00-16:20	D. Amram , O. Kovalenko, L. Klinger, E. Rabkin Metallic nanowire growth by dewetting of thin films Department of Materials Science and Engineering, Technion – Israel Institute of Technology, Haifa, Israel
16:20-17:00	Coffee break
17:00-17:20	P. Jacquet ^{1,3} , A. Le Bris ^{1,2} , F. Maloum ¹ , I. Gozhyk ¹ , F. Sorin ² , J. Teisseire ¹ , R. Lazzari ³ Arrays of silver nanoparticles obtained from solid state dewetting on a nano-imprinted sol-gel layer ¹ Laboratoire de Surface du Verre et Interfaces, Unité mixte de Saint-Gobain – UMR 125, France ² Institut des Matériaux, Ecole Polytechnique Fédérale de Lausanne, Switzerland ³ Institut des Nanosciences de Paris, UPMC, France
17:20-17:40	E. Rabkin , L. Klinger, A. Kosinova, O. Kovalenko The role of interphase boundary diffusion in solid state dewetting of thin metal films Department of Materials Science and Engineering, Technion – Israel Institute of Technology, 32000 Haifa, Israel
17:40-18:00	V. Yu. Traskine, Z.N. Skvortsova, E.V. Porodenko, D.N. Zubov, I.F. Gazizullin Transport properties of internally wetted polycrystals Lomonosov University, Chemical Department, Moscow, Russia
18:00-19:00	Poster session
19:00	Conference dinner

Thursday 21 May 2015	
	Morning session: Chairperson H. Taitelbaum, S. Agathopoulos
9:00-9:40	Key-note lecture: Lasar S. Shvindlerman , Günter Gottstein 1D Structural elements and high temperature capillarity in nanocrystalline materials Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Moscow District, Russia Institut für Metallkunde und Metallphysik, RWTH Aachen University, Aachen, Germany
9:40-10:00	L. Klinger , E. Rabkin Chemical interdiffusion along interphase boundaries between immiscible materials Department of the Material Science and Engineering, Technion-Israel Institute of Technology, Haifa, Israel
10:00-10:20	V.M. Samsonov , T.E. Samsonov Pseudopartial wetting in metal systems: molecular-dynamics simulation Tver State University, Tver, Russia
10:20-10:40	V.A.Timoshenko, V.Yu.Traskine, P.V. Protsenko Influence of adsorption on interfacial thermodynamics in Pb/Cu system Lomonosov Moscow State University, Chemistry Department, Leninskie Gory, 1, str. 3 Moscow, 119991, Russia
10:40-11:00	M. Dehsara, S.Dj. Mesarovic, H. Fu, D.P. Sekulic , M. Krivilyov Kinetics of the molten metal triple line movement: phase field models and experiments Washington State University, Pullman WA, USA University of Kentucky, Lexington, KY 40506, USA Harbin Institute of Technology, Harbin 10005, China Udmurt State University, Izhevsk, Russia
11:00-11:20	Coffee break
11:20-11:40	J.T. Szabo ^{1,2} , P. Baumli ^{1,2} , G. Kaptay ^{1,2,*} Interfacial phenomena in Al-Bi system. Perfect wettability on Al substrate by molten Bi. Grain boundary wetting in Al-Bi system ¹ Bay Zoltán Nonit Ltd. for Applied Research, Institute for Logistics and Production Engineering (BAY-LOGI), Miskolc, Hungary ² University of Miskolc, Dept. of Nanotechnology, Miskolc-Egyetemvaros, Hungary
11:40-12:00	H.W. Zhang ¹ , K. Nakajima ² , J.C. He ¹ Cellular automaton modeling of grain growth considering interfacial energy, mobility and curvature ¹ Northeastern University, Key Laboratory of Electromagnetic Processing of Materials, 110004 Shenyang, P.R. China ² Royal Institute of Technology, Department of Materials Science and Engineering, SE-10044 Stockholm, Sweden

12:00-12:20	W. Rheinheimer , M.J. Hoffmann Grain growth anomalies in Strontium and Barium Titanate Ceramics and its relationship to abnormal grain growth and defect distribution Karlsruhe Institute of Technology, IAM – Ceramic materials and technology, Karlsruhe, Germany
12:20-12:40	B.B. Straumal ^{1,2} , A.A. Mazilkin ^{1,2} , X. Sauvage ³ , I. Konyashin ⁴ , B. Baretzky ² Pseudopartial grain boundary wetting ¹ Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Moscow district, Russia ² Karlsruhe Institute of Technology, Institute of Nanotechnology, Eggenstein-Leopoldshafen, Germany ³ Université de Rouen – GPM UMR 6634, St-Etienne-du-Rouvray, France ⁴ Element Six GmbH, Technical Development Centre, Burghaun, German
12:40-13:00	Closing ceremony (A. Passerone, B. Straumal, Organizer of the next HTC-Conference, Awards)
13:00-15:00	Lunch
15:00	Variant 1: Excursion in Bad-Herrenalb (2-3 hours)
15:00	Variant 2: Bicycle trip Bad-Herrenalb – Ettlingen (2-3 hours)

Posters

in alphabetic order of presenting authors
Poster sessions on Tuesday and Wednesday before dinner

P-01. **Novel composites of nano-Al₂O₃ with inclusions of Ni or Cu**

F. Petrakli¹, D. Sioulas¹, A. Tsetsekou¹, S. Agathopoulos²

¹School of Mining and Metallurgical Engineering, National Technical University of Athens, 157 80 Athens, Greece

²Department of materials Science and Engineering, University of Ioannina, 451 10 Ioannina, Greece

P-02. **Reaction mechanism between Si-Co alloys and glassy carbon substrates**

S. Amore¹, M. Caccia², D. Giuranno¹, R. Novakovic¹, J. Narciso², E. Ricci¹

¹Consiglio Nazionale delle Ricerche, Istituto per l'Energetica e le Interfasi (CNR-IENI) Via de Marini, 6 16149 Genova (Italy)

²Instituto Universitario de Materiales de Alicante (IUMA), Universidad de Alicante, Apdo. 99, 03080 Alicante (Spain)

P-03. **"Encapsulation by Segregation" - A Multifaceted Approach to Au segregation in Fe Particles on Sapphire**

D. Amram, Y. Amouyal, E. Rabkin

Department of Materials Science and Engineering, Technion – Israel Institute of Technology, Haifa, Israel

P-04. **Wettability of steel by Cu and Ni alloys**

P. Baumli^{1,2}, J. Pálkovács^{1,2}, G. Kaptay^{1,2}

¹Bay Zoltán Nonit Ltd. for Applied Research, Institute for Logistics and Production Engineering (BAY-LOGI) Igloi street 2, H-3519 Miskolc, Hungary

²University of Miskolc, Dept. of Nanotechnology, H-3515 Miskolc-Egyetemvaros, Hungary

P-05. **Wettability of copper by Pb-free solder alloys**

P. Baumli^{1,2}, M. Czagány^{1,2}, L. Somlyai-Sipos^{1,2}, G. Vaskó^{1,2}, G. Kaptay^{1,2}

¹Bay Zoltán Nonit Ltd. for Applied Research, Institute for Logistics and Production Engineering (BAY-LOGI) H-3519 Miskolc, Igloi street 2.

²University of Miskolc, Dept. of Nanotechnology, H-3515 Miskolc-Egyetemvaros

P-06. **Lattice Boltzmann method: An approach to understand reactive infiltration**

D. Sergi¹, A. Camarano², J. M. Molina², A. Ortona¹, J. Narciso²

¹University of Applied Sciences SUPSI, The iCIMS Research Institute, Galleria 2, CH-6928 Manno, Switzerland

²Instituto Universitario de Materiales de Alicante (IUMA), Universidad de Alicante, Apdo. 99, 03080 Alicante, Spain

P-07. **Wetting and reactivity of Ta-X (X=Ni, Co) alloys on CVD-SiC ceramics**

F. Valenza¹, S. Gambaro¹, A. Passerone¹, M.L. Muolo¹

Institute for Energetics and Interphases – National Research Council (IENI-CNR), Via De Marini 6, 16149, Genova, Italy.

P-08. Surface tension and density measurements of Co-Si melts by pendant drop method
D. Giuranno, R. Novakovic, S. Amore, E. Ricci, M. Caccia, J. Narciso, R. Nowak, G. Bruzda, N. Sobczak

Consiglio Nazionale delle Ricerche, Istituto per l'Energetica e le Interfasi (CNR-IENI),
Via de Marini, 6 16149 Genova (Italy)

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03080 Alicante (Spain)

Foundry Research Institute (CHTS), 73 Zakopianska Street, 30-418 Krakow (Poland)

P-09. Surface tension and density measurements of Fe-Cr based steels by pendant drop method

D. Giuranno¹, R. Nowak², G. Bruzda², R. Novakovic¹, N. Sobczak², E. Ricci¹

¹Institute for Energetics and Interphases- IENI-CNR, Genoa, Italy

²Foundry Research Institute (CHTS), Krakow, Poland

P-10. The effect of the third component on the grain boundary wetting in Zr-Nb-X (Cr, Cu, Sn and Fe) alloys

A.S. Gornakova, B.B. Straumal

Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Ac. Ossipyan
str. 2, Moscow district, 142432 Russia

P-11. Grain boundary wetting by a second solid phase in the titanium-based alloys

A.S. Gornakova, S.I. Prokofjev, B.B. Straumal

Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Ac. Ossipyan
str. 2, Moscow district, 142432 Russia

P-12. Temperature induced faceted hole formation in epitaxial Al thin films on sapphire

S. Hieke, G. Dehm, C. Scheu

Max-Planck-Institut für Eisenforschung GmbH, Max-Planck-Str. 1, 40237 Düsseldorf,
Germany

P-13. Wettability tests in connection with soldering and brazing materials

J. Hlinka¹, Z. Weltsch^{1,2},

¹Budapest University of Technology and Economics, Department of Automobiles and Vehicle
Manufacturing, 1111 Stoczek street 2. Building St, Ground Floor St.F.05, Budapest, Hungary,

²Kecskemét College, Department of Materials Technology, Faculty of Mechanical
Engineering and Automation, Izsáki út 10, H-6000 Kecskemét, Hungary

P-14. A method to calculate the grain boundary segregation transition line in alloys

G. Kaptay

University of Miskolc, Dep. Nanotechnology, Egyetemvaros, 3515 Miskolc, Hungary

Bay Zoltan Nonprofit Ltd, BAY-LOGI, Dep. Nanomaterials, 2 Igloi, 3519 Miskolc, Hungary

P-15. Surface tension measurements of super-cooled Fe-O liquid alloys using the electromagnetic levitation method

Han Gyeol Kim¹, Joongkil Choe¹, Takashi Inoue², Shumpei Ozawa², Joonho Lee¹

¹Department of Material Science and Engineering, Korea University, 145 Anam-ro, Seongbuk
-gu, Seoul, 136-713, Republic of Korea

²Department of Mechanical Science and Engineering, Chiba Institute of Technology, 2-17-1
Tsudanuma, Narashino, Chiba 275-0016, Japan

P-16. The grain boundary wetting phase transitions in the peritectic Cu–Co alloys

O.A. Kogtenkova¹, P. Zięba², A. Korneva², B.B. Straumal¹

¹Institute of Solid State Physics RAS, 142432 Chernogolovka, Russia

²Institute of Metallurgy and Materials Science PAN, 30-059 Cracow, Poland

P-17. Misorientation-energy relation for grain boundaries in polycrystalline copper

V.V. Koroley¹, V.A. Timoshenko¹, Ya.V. Kucherinenko², A.M. Makarevich¹, V.Yu. Traskine¹, P.V. Protsenko¹

¹Lomonosov Moscow State University, Chemistry Department, Leninskie Gori, 1, str.3 Moscow, 119991, Russia

²Lomonosov Moscow State University, Geology Department, Leninskie Gori, 1, str.3 Moscow, 119991, Russia

P-18. Functionally graded cemented carbides obtained on the basis of capillarity phenomena

I. Konyashin^{1,2}, B. Straumal²⁻⁴, S. Hlawatschek¹, B. Ries¹, B. Baretzky⁴, K. Kolesnikova³

¹Element Six GmbH, Burghaun, Germany

²National University of Science and Technology MISiS, Moscow, Russia

³Institute of Solid State Physics, Chernogolovka, Russia

⁴Karlsruhe Institute of Technology, Institute of Nanotechnology, Eggenstein-Leopoldshafen, Germany

P-19. Contact melting of copper with aluminium

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P-20. The structure and bond strength of composite carbide coatings (WC-Co+Ni) deposited on ductile cast iron by thermal spraying

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P-21. Preparation and characterization of sub-20 nm CuX@Ag1 core-shell nanoparticles by changing concentration of silver precursor

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P-22. Micro pulling down growth of very thin shape memory alloy single crystals

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P-23. Interface energies of ferrite and B1 type compounds (TiO, TiN, MgO) using first-principles calculation

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P-24. The temperature coefficient of the surface tension of pure Zn measured by means of the maximum bubble pressure method

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P-25. The effects of cooling rate and duration of Pulse Magneto Oscillation (PMO) treatment on the solidified structure of aluminum

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P-26. Effect of lithium on the synthesis process and phase stability of non-stoichiometry nano magnesium aluminate spinel

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P-27. Prediction of the intragranular ferrite nucleation in steels with Ti-oxide and TiN additions

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P-28. Stabilized metallic emulsions: their production and usage in heat storage and heat transport

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P-29. Temperature dependence of the surface energy of the (111) and (100) crystallographic planes of UO₂ and ThO₂

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P-30. Oxidation phenomena at the surface of molten Ag-Cu alloys described by different theoretical approaches

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P-31. In-situ observation of dynamic reactive wetting of molten slag on coke substrates

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P-32. Low temperature fabrication of the reaction bonded B₄C/Al–Si composites

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P-33. Kinetics of growth of grain-boundary wetting layer in Ti–Co alloys

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P-34. Effect of ionicity degree of ceramic materials on their wettability by molten NaCl

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P-35. Surface and water adsorption enthalpies of Nanoscale Nd doped CeO₂

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P-36. Evaluation of the proportionality coefficient in Rusanov's formula for the surface tension of nanoparticles and the thermodynamic stability problem

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P-37. Dissimilar laser brazing of single crystal diamond and cemented carbide and wetting behavior of single crystal diamond by Silver–Copper–Titanium alloy braze

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P-39. Water adsorption enthalpy of non-stoichiometric magnesium aluminate spinel

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P-40. Polytherms of angles of wetting of porous nickel and copper by tin-barium and indium-sodium melts

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P-41. Influence of the grain boundary character on the transition from incomplete to complete wetting in Cu-In system

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P-42. Nanograined ZnO: Grain boundaries wetted by the amorphous ferromagnetic layers

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P-43. Spreading of Sn and Sn-Cu melts on Cu and Cu₃Sn intermetallic surfaces

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P-44. Wetting and interactions of Ag-Cu-Ti and Ag-Cu-Ni alloys with ceramic and steel substrates for use as sealing materials in a DCFC stack

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P-45. Ostwald ripening and embedding of Au islands during high-temperature annealing

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P-46. Phase-field study on the formation of the intermetallic Al₂Au phase in Al-Au system

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P-47. Surface tension of liquid Al-Ti alloys

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P-48. Experimental study of interfacial interactions between liquid Ti and Al-Ti alloys and TiB₂ ceramic

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P-49. Wetting and interfacial corrosion of layered Cu-Nb composite by Pb-Cu melt

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