

Contents

Invited Lectures

11 J. Warnatz; IWR, Heidelberg, Germany

Hydrocarbon oxidation high temperature chemistry

12 J.W. Hastie, D.W. Bonnell and P.K. Schenck; NIST, Gaithersburg, USA

Application of very high temperature mass spectrometry to vapor pressure determinations over liquid refractories

13 P .C. Nordine; Containerless Research Inc., Evanstone, USA

Properties of high temperature melts using levitation

14 M. Hillert; KTH, Stockholm, Sweden **Thermodynamic modelling**

15 W. van Erk; Philips Lighting, Eindhoven, The Netherlands

Transport processes in metal halide gas discharge lamps

16 V.E. Bondybey; Technical University of Munich, Germany

Reactions of hot and cold metal clusters

17 H. Schmalzried; University of Hannover, Germany

Chemical kinetics at solid/solid interfaces

18 G. Wahl; Technical University of Braunschweig, Germany

High temperature chemical vapor deposition, an effective tool for the production of coatings

Keynote Lectures

K 1 M. Förster; STEAG, Dorsten, Germany

Ceramic materials in a pressurized coal combustion process - a survey

K2 D.C. Dayton and T.A. Milne;

National Renewable Energy Laboratory, Golden, USA

Molecular beam sampling, mass spectrometric detection of inorganic species released during biomass thermochemical conversion

K 3 H.J. Seifert; MPI, Stuttgart, Germany

Thermodynamics of ceramic systems

K4 V.L. Stolyarova; Russian Academy of Sciences, St. Petersburg, Russia

High temperature mass spectrometric study of oxide melts

K5 Z.A. Munir; University of California, Davis, USA

Modelling and experimental studies on the effect of thermophysical properties on field-activated combustion synthesis reactions

K6 Q. Zhiyu, Y. Lijun et al.;
University of Science and Technology Beijing, P.R. China
Surface tension modelling of melts

K7 W.A. Oates; University of Salford, U.K.
Deformable cluster modelling in alloy thermodynamics

K8 S. Krishnan; Containerless Research Inc., Evanstone, USA
Atomic structure of high temperature oxide melts

K9 J.A. Baglio and C.W. Struck; Osram Sylvania, Beverley, USA
The thermochemistry of NaI/LiI/DyI₃ molten salt, vapor equilibria

K 10 M. Hargittai; Hungarian Academy of Sciences, Budapest, Hungary
The meaning of "structure" for metal halide molecules

K11 S.Iijima; Meijo University, Ibaraki, Japan
Growth dynamics of carbon nanotubes by laser ablation

K12 J. Drowart; University of Brussels, Belgium
Knudsen effusion mass spectrometry

K13 L.N. Sidorov; Moscow State University, Russia
Ion-molecular equilibria in fullerenes vapors

K14 E.J. Opila; Cleveland State University, Cleveland, USA
Water vapor effects on silica forming ceramics

K15 W.J. Quadakkers, v. Shemet and L. Singheiser; Forschungszentrum Jülich, Germany
Oxidation mechanisms of aluminium-based intermetallics - thermodynamic and kinetic aspects

K16 B.C.H. Steele, C.B. Alcock* et al.;
Imperial College, London, U. K.;*University of Toronto, Canada
Materials chemistry and SOFC development: Selected case studies

K17 R. A. de Souza and J. Maier; MPI, Stuttgart, Germany
Stoichiometry changes and isotope incorporation in single crystal Fe-doped SrTiO₃

Oral Presentations

01 E. Schlosser, H. Pitz et al.; University of Heidelberg, Germany

High-temperature in.situ-detection of atomic potassium with NIR- diode lasers

02 D. Lexa, L. Leibeowitz and A.J. Kropf; ANL, Argonne, USA

Occlusion of molten chloride salts by zeolite 4A- nature, thermo- dynamics, and application to nuclear waste treatment and disposal

03 W. Yuan, H.C. Flandorfer and H. Ipser; University of Wien, Austria

The intermetallic compound Ni₃Ga: nonstoichiometry and thermodynamics

04 J. Breuer, F. Sommer and G. J. Mittemeijer; MPI Stuttgart, Germany

Enthalpy of formation and description of defect structure of the intermetallic compound B₂-FeAl

05 S. Knott and A. Mikula; University of Wien, Austria

Al-Sn-Zn alloys: A new lead-free solder material?

06 G.N. Papatheodorou; ICE-HT -FORTH, Patras, Greece

Molten rare earth halides: structure and thermodynamics

07 T. Tsuji, H. Mitani* and Y. Yamamura; Japan Advanced Institute of Science, Ishikawa, Japan *Nagoya University, Japan

Thermodynamic properties of Ce_{1-y}Hf_yO₂ (y=0 -0.30)

08 P. Schmidt and H. Oppermann; Technical University of Dresden, Germany

Description of the quaternary system Bi-Te-Se-O and thermodynamic modelling of the phase diagrams

09 J. Lis; University of Mining and Metallurgy, Crakow, Poland

Nitrogen ceramic materials prepared using combustion (SHS) method

010 G. Thurn, M. Christ et al.; MPI Stuttgart, Germany

High temperature mechanical properties of Si-B-C-N precursor-derived ceramics

011 G. Zhang and O. Ostrovski; University of New South Wales, Sydney, Australia

Synthesis of titanium carbide by reaction of titania with methane- hydrogen gas

012 G. Wilde, R. Sakidja et al.; University of Wisconsin, Madison, USA

Microstructural development and phase stability of Moss-MoSSiB₂ in-situ composites

013 D. Sporn, R. Krüger and G. Müller; Fraunhofer-Institut, Würzburg, Germany

Concepts for high temperature materials based on oxidic composites reinforced with single crystalline fibres

014 F. D. Meyer and H. Hillebrecht; University of Bayreuth, Germany

Ternary phases in the system Al/B/C

- 015** K. sujirote, et al.; Natl. Metal and Materials Techn. Center, Bangkok, Thailand ;
Silicon carbide synthesis from rice husk: effect of chemical and hydrothermaltreatments
- 016** K.E. spear, T.M. Bessmann* and E.C. Beahm* ; Pennsylvania state University, University Park, USA; *ORNL, Oak Ridge, USA
Thermochemical modeling of glass: application to high-level nuclear waste glass
- 017** A. Prikhodovski, I. Hurtado and D. Neuschütz; RWTH Aachen, Germany
Application of thermodynamic databases to the simulation of microstructure coarsening in steels
- 018** M. Modigell, A. Traebert and P. Monheim*; RWTH Aachen, Germany; *Mannesmann Demag, Duisburg, Germany
Modelling of the LD-converter process with focus on non-equilibrium phenomena
- 019** P. Rocabois, J.-C. Huber* et al.; IRsiD, Maizieres-Ies-Metz, France; *Ecole des Mines de Nancy, France
Thermodynamic assessment of the oxide phases in the Fe-Zn-O system -application to dust formation in electric arc furnace
- 020** R. Devonshire, J.C. McGourlay and R.J. Forrest; University of sheffield, U.K.
Corrosion of silicia and hard glasslamp envelope materials by high temperature lamp atmospheres
- 021** C.L. Ning and C. Scott*; GE Lighting, Leicester, U.K.; *GE Lighting, Ohio, USA
Reliability in ceramic metal halide lamp design
- 022** G.C. Wei; Osram sylvania, Beverly, UsA
Characterization of translucent polycrystalline alumina in lamps
- 023** M.sturzenegger, Th. Frey et al.; Paul Scherrer Institute, Villigen, Switzerland
High-temperature chemical reactivity studies under concentrated solar radiation
- 024** E. Vietzke, K. Flaskamp and M. Hennes; Forschungszentrum Jülich, Germany
Evaporation of boron-, silicon- and titanium-doped carbon materials
- 025** A. Kornath, A. Kaufmann et al.; University of Dortmund, Germany
Growth of metal clusters in matrices
- 026** C.W. Larson; Air Force Research Lab., Edwards, UsA
Matrix isolation of boron and carbon vapor. Control of cluster formation during preparation and annealing
- 027** H. Kudo, H. Tanaka et al.; Tohoku University, sendai, Japan
Structure and bonding of hyperlithiated molecules $\text{Li}(\text{OH})_{n-1}$ ($n = 2-5$) generated by laser ablation of slightly oxidized lithium
- 028** C. Chatillon; CNRs, Saint Martin d'Heres, France
Evaporation and condensation coefficients by the multiple Knudsen cell mass spectrometric method

029 M. Yamawaki, K. Yamaguchi et al.; University of Tokyo, Japan

Thermochemical studies of oxide ceramics using an atmosphere- controlled high temperature mass spectrometer

030 G. Balducci, M. Campodonico et al.; University of Rome, Italy

KC-MS and FTIR matrix isolation study of manganese oxifluoride species

031 M. Spiegel, H.J. Grabke and K.H. Tacke; MPI Düsseldorf, Germany

Kinetic studies on the oxidation of Fe-si steels in the temperature range from 1000 -1400 °C

032 K. Prüßner, B.A. Pint*et al.;

University of Siegen, Germany; *ORNL, Oak Ridge, USA

Interfacial engineering for oxidation resistant alloys

033 P.L. Cignini, D. Gozzi and S. Shimada*; University of Rome, Italy; *University of Hokkaido, Sapporo, Japan

Refractory carbidesI oxygen interaction at low pressures and high temperature

034 A.A. Kodetsov, M.J.H. van Dal et al.;

University ofTechnology, Eindhoven, The Netherlands

Deformation phenomena accompanying internal precipitation in solids

035 M. Kilo, G. Borchardt et al.; Technical University of Clausthal, Germany

Y and Zr tracer diffusion in yttria-stabilized zirconia at temperatures between 1800 and 2050 K

036 O. Schulz and M. Martin; Technical University of Darmstadt, Germany

Preparation, characterisation and cation diffusion in polycrystalline La Sr Ga MgO

037 Ch.-Ho Yu, E. Zimmermann and D. Neuschütz; RWTH Aachen, Germany

Deposition kinetics of TiB₂ from TiCl₄-BCl₃-H₂-HCl gas mixtures by thermal CVD in a hot-wall reactor

038 G. De Mariaa, L. D'Alessiob et al.; University of Rome, Italy

Pulsed laser ablation deposition of ZrC films

039 M. Schröder, K.Q. Huang and J.B. Goodenough; University of Texas, Austin, USA

Oxygen permeation through mixed conducting oxide membranes

040 D. Herbstritt, U. Guntow*et al.; University of Karlsruhe, Germany; *Fraunhofer Institute, Würzburg, Germany

Increased cathode performance using a thin film LSM layer on a structured 8YSZ electrolyte surface

041 R. Hempelmann; University of Saarbrücken, Germany

Atomistic diffusion mechanism in high temperature proton conductors

Short Presentations

S 1 A.D. Pelton, C.W. Bale et al.; Ecole Polytechnique, Montreal, Canada

Demonstration of FACTSage and ChemApp at HTMC-X

S 2 B. Sundman, J. Agren and P. Shi*; Royalinstitute of Technology and *Thermo- Calc AB, Stockholm, Sweden

Thermo-Calc and DICTRA in assisting materials design

S3 R.H. Davies, A.T. Dinsdale et al.; i National Physical Laboratory, Teddington, U.K.

MTDATA -The NPL tool for materials thermochemistry

S4 H. Yokokawa, S. Yamauchi* and T. Matsumoto**; Nationalinstitute for Materials and Chemical Research, Ibaraki, Japan; *National Rehabilitation Center for Disabled, Saitama, Japan; **Kagaku Gijutsu sha, Tokyo, Japan

The thermodynamic database MALT for Windows

S 5 G. Effenberg; Materials Science International Services, Stuttgart, Germany

MSI workplace, access to materials chemistry data and knowledge

S6 V.S. Iorish and V.S. Yungman; Glushko Thermocenter of RAS, Moscow, Russia

Thermodynamic databases of the Glushko Thermocenter of RAS

S7 E.B. Rudnyi; Moscow State University, Russia

Implementing thermodynamic assessment of phase diagrams with , computational thermodynamics library, TDLIB'99

Physical Properties

A 1 I. Egry, G. Lohöfer and S. Schneider; DLR, Köln, Germany

Non-contact thermophysical property measurements of liquid metals

A2 E. Ricci, R. Novakovic et al.; CNR, Genova, Italy

Study of dynamic surface tension of molten silicon: development of experiments and models

A3 M. Ratto, E. Ricci* and E. Arato; University of Genova, *CNR, Genova, Italy

Dynamic surface tension measurements on molten Sn: oxidation- deoxidation transition and model validation

A4 C. Cagran, A. Seifter and G. Pottlacher; Technical University of Graz, Austria

Thermophysical properties of solid and liquid copper

A5 E.L. Anikina, E.I. Burmakin and V.I. Zemtsov;

Russian Academy of Sciences, Ekaterinburg, Russia

Investigation of the system $\text{Nd}_0.8\text{Ca}_{0.2}\text{Cr 1-YLi}_2\text{O}_3$ at the high temperature range

A7 S. Eckhoff, I. Alxneit et al.; Paul-Scherrer-Institute, Villigen, Switzerland

Determination of the spectral emittance in the visible spectral range at high temperatures supported by laser heating

A8 H. Schneider, F. Frey* and G. Grunauer*; DLR, Köln; *University of München, Germany

Thermal expansion of mullite

Vaporization / Mass Spectrometry / Temperature Measurement

A9 V.P. Zlomanov, V.I. Tjulin et al.; Moscow State University, Russia

Vaporization and thermodynamics of indium tellurides

A10 A. Petric and C. Chatillon*; McMaster University, Hamilton, USA; *CNRS, Saint Martin d'Heres, France

Dilute activity coefficient and solubility in binary oxides by mass spectrometry: the $\text{Na}_2\text{O-Al}_2\text{O}_3$ and $\text{MgO-Al}_2\text{O}_3$ systems

A 11 M. Bertherat, E. Blanquet et al.; ENSEEG, Saint Martin d'Heres, France

Supersonic expansion mass spectrometric measurements on a liquid aluminium bath

A12 A.V. Gusarov, A.V. Makarov* and N.V. Bagaratyan*;

Glushko Thermocenter, Moscow, Russia; *Moscow State University, Russia

Equilibrium vaporization behavior of All BVI and dissociation energies of All BVI molecules

A 13 S.I. Shornikov and I.Yu. Archakov; Russian Academy of Sciences, St. Petersburg, Russia

High temperature mass spectrometric study of thermodynamic properties and vaporization processes in the $\text{Al}_2\text{O}_3\text{-SiO}_2$ system

A14 S.I. Shornikov and I.Yu. Archakov; Russian Academy of Sciences, St. Petersburg, Russia

High temperature study of the evaporation of silicon monoxide

A 15 L.S. Kudin, A.M. Pogrebnoi et al.; State University, Ivanovo, Russia

Mass spectrometric study of vaporization of lanthanide trichlorides and thermodynamic properties of gaseous molecules and ions

A16 M.F. Butman, A.A. Smirnov et al.; State University, Ivanovo, Russia

Mass spectroscopic study of the molecular and ionic sublimation of alkali halide single crystals

A17 J.V. Rau, N.S. Chilingarov et al.; Moscow State University, Russia

Synthesis and investigation of the properties of gaseous high transition metal fluorides

A 18 N.S. Chilingarov, J.V. Rau et al.; Moscow State University, Russia

The investigation of fluorination of $\text{CoF}_2(\text{S})$ and $\text{CoF}_2(\text{S})$ - $\text{TbF}_3(\text{S})$ mixture by atomic fluorine

A 19 B.M. Mogutnov, A.I. Zaitsev et al.; I.P. Bardin Central Research Institute, Moscow, Russia ,

Thermodynamics of liquid silicates

A20 A.A. Tsalpin, A.I. Zaitsev et al.; I.P. Bardin Central Research Institute, Moscow, Russia ;

Thermodynamic properties and phase equilibria in $\text{Na}_2\text{O-SiO}_2$ and $\text{K}_2\text{O-SiO}_2$ system

A21 A.I. Zaitsev; I.P. Bardin Central Research Institute, Moscow, Russia

High temperature mass spectrometric studies of metallic alloys and mixtures of inorganic compounds

A22 L.N. Gorokhov, A.V. Gusarov and A.M. Emelyanov; Glushko Thermocenter, Moscow, Russia

Decomposition and vaporization of samarium triiodide

A23 T.S. Lakshmi Narasimhan, M.Sai Baba and R. Viswanathan; IGCAR, Kalpakkam, India

Vaporization and phase diagram studies on Mn-Te-O system

A24 J. Kapala, M. Miller and S. Roszak; University of Technology, Wrocław, Poland

Mass spectrometric and theoretical investigations of $\text{LnCl}_3(\text{g})$ and $\text{Ln}_2\text{Cl}_6(\text{g})$

A25 J. Kapala, I. Lisek et al.; University of Technology, Wrocław, Poland

Thermodynamic investigation and theoretical calculations on $ALnCl_4(g)$, A = alkali metal, Ln = lanthanide

A27 K. Hilpert, M. Miller* and A. Feltrin**; Forschungszentrum Jülich, Germany; *University of Technology, Wrocław, Poland; **University of Rome, Italy

Vaporisation of CsBr and thermochemistry of the homocomplexes $(CsBr)_n(g)$, $n = 2, 3, 4$

A27 C. Jones and J.G. Edwards; University of Toledo, USA

Neutron powder diffraction studies of phase transformations under effusion conditions

A28 A.M. Pogrebnoi and L.S. Kudin; State University, Ivanovo, Russia

High temperature mass spectrometric investigation of solid electrolytes

A29 H.R. Tschudi and Cr. Müller; P5A, Villigen, Switzerland

Pyrometric temperature measurements in presence of external radiation

A30 D.H. Peck, M. Miller and K. Hilpert; Forschungszentrum Jülich, Germany

Vaporization and Gibbs energy of formation of the Rudlesden-Popper phases in the system $MO-Cr_2O_3-La_2O_3$ $M = Ca, Sr$

A31 5.1. Lopatin, G.A. Semenov et al.; State University, St. Petersburg, Russia

Thermodynamic study of gaseous ternary alkaline earth metal-boron- oxygen molecules

A32 5.1. Lopatin, G.A. Semenov and T.5. Pilyugina; State University, St. Petersburg, Russia

Mass spectrometric study of the vaporization of cesium tungstate

A33 K. Ono and R.O. Suzuki; Kyoto University, Japan

Enhanced evaporation of copper by NH_3 gas blowing

A34 L. Bencze and A. Popovic; Jozef Stefan Institute, Ljubljana, Slovenia

High temperature mass spectrometric investigation of refractory mixed oxides

A35 A. Popovich, A. Lesar et al.; Moscow State University, Russia

Ionisation of gaseous CoF_3 by electron impact. Mass spectrometric and quantum chemical studies

A36 K.A. Gingerich; Texas A&M University, College Station, USA

Bond energies from mass spectrometric equilibrium measurements at very high temperatures

Clusters

A37 J. Morenzin, H. Kietzmann et al.; Forschungszentrum Jülich, Germany

Spectroscopic evidence for the magnetic behaviour of rhodium and ruthenium clusters

A38 A.S. Alikhanyan, M.I. Nikitin et al.; Russian Academy of Sciences, Moscow, Russia

Synthesis and thermodynamic properties of higher buckminsterfullerene fluorides $C_{60}F_{2n}$ ($n=17-24$)

A39 A.L. Emelina, A.S. Alikhanyan et al.; Russian Academy of Sciences, Moscow, Russia

Vaporization in system $C_{60}F_{2n}O_m$ ($n=21-23$; $m = 0,1$)

A40 N.S. Chilangarov, A.V. Nikitin et al.; Moscow State University, Russia

The interadion of (60)fullerene with molecular fiuorine in the $C_{60}(s)-MnF_2$, $C_{60}(s)-Mn_2F_5$ and $C_{60}(s)-MnF_3$ systems

A41 M.V. Korobov, P.A. Dorozhko et al.; Moscow State University, Russia

Sublimation fullerene hydrides

A42 K.R.P. Nair and F.W. Froben*; Cochin University, India; *University of Berlin, Germany

Spectroscopic investigations on high temperature molecules

A43 C.P. Groen, A. Oskam and E.H.P. Cordfunke; University of Amsterdam, The Netherlands

Dimerisation of the rare-earth halides

Lamps

A44 R. Takke and H.-D. Witzke; Heraeus, Hanau, Germany

The influence of different types of quartz glass used as lamp tubing on the performance of modern light sources

A46 A. Körber; Philips Research Laboratories, Aachen, Germany

A simple method for routine measurements of atomic partial pressure in burning HID lamps

A47 A. Skudra, N. Denisova* and G. Revalde; University of Latvia, Riga, Latvia; *Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia

The HF-electrodeless light source cleaning method

A48 G. Revalde and A. Skudra; University of Latvia, Riga, Latvia

Optimum of filling of rare gas and hydrogen HF-electrodeless light sources

A49 M. Born and U. Niemann; Philips Research Laboratories, Aachen, Germany

Interaction of zinc with rare-earth halides under conditions of high-pressure discharge lamps

A50 D.C. Fromm, G.H. Lieder and K.H. Gleixner; OSRAM, München, Germany

Investigation of plasma core temperature and electrode tip temperature in metal halide lamps considering different operating conditions

A 51 B. Schalk, L. Hitzschke and G. Hartel*; OSRAM, München, Germany; *Graal-Muritz, Germany

Vapour pressure of TII and its influence on the partial pressure of TI in metal halide lamps

A52 T. Turanyi, T. Perger and L. Balazs*; Eötvös University, Budapest, Hungary; *GE Lighting Tungsram, Budapest, Hungary

A reaction-diffusion model of cylindrical halogen lamps

A53 L. Bigio; GE, Schenectady, USA

Normal spectral emittance measurements (600-2000 nm) of polycrystalline alumina (PCA) at high temperatures

A 54 M. Steinmann; Philips Lighting, Eindhoven, The Netherlands

Dedicated pinch protection of high intensity discharge burners

A55 G. Zissis and J.-J. Damelincourt; University Pierre Sabatier, Toulouse, France

On the role of chemi-ionisation in rare-gas medium pressure discharge lamps

High Temperature Fuel Cellsl Defects/Glasses

A56 K. Künstler, H.-J. Lang and G. Tomandl; University of Freiberg, Germany

Synthesis, structure and electrochemical properties of In-doped BaTbO₃

A 58 O.L. Kobeleva; Ural State University, Ekaterinburg, Russia

Temperature dependence of the frequency independent factor CPE - effect of solid electrolytes

A59 M. Aniya; Kumamoto University, Japan

Relationship between network expansion and average electro- negativity in superionic glasses

A60 Ch. Gerk and M. Willert-Porada; University of Bayreuth, Germany

Fabrication and properties of new composite powders for SOFC anodes from a eutectic ceramic melt process

A61 E.A. Mashkina, L.A. Dunyushkina et al.; Russian Academy of Sciences, Ekaterinburg, Russia

Electrical conductivity in Ca_{1-x}Sr_x Ti_{1-y}FeyO_{3-d} system

A62 R.P. Kononov, A.K. Demin and N.O. Esina; Russian Academy of Sciences, Ekaterinburg, Russia

Oxygen permeation in Lao.5Sr O.5-xCaxCo03-d (x=0-0.5)

A63 P. Fochuk, O. Panchuk et al.; Chernivtsi University, Ukraine

The high-temperature defect structure of CdTe -comparison between theory and experiment

A64 P. Biedenkopf and T. Wochner*; I Forschungszentrum Jülich, Germany; *MTU, Friedrichshafen, Germany
High temperature materials in molten carbonate fuel cells

A65 V. Brichzin, J. Fleig et al.; MPI Stuttgart, Germany **Cathodic losses in solid oxide fuel cells investigated by geometrically l defined microelectrodes**

A66 T. Tsuji, H. Kurono* and Y. Yamamura; Japan Advanced Institute of Science & Technology, Ishikawa, Japan; *Nagoya University, Japan
Thermodynamic properties of BaCe_yEu_{1-y}O_{3-x} (y=0-0.1)

A67 P. Majewski and F. Aldinger, MPI Stuttgart, Germany
Phase diagram studies in the system La₂O₃-5rO-MgO-Ga₂O₃

A68 A.V. Bannykh, B.L. Kuzin et al.; Russian Academy of Sciences, Ekaterinburg, Russia
Electroconductivity of BaCe_{0.9}Nd_{0.1}O_{3-x} in (H₂+H₂O+Ar) gas mixtures

A69 D.I. Bronin, B.L. Kuzin et al.; Russian Academy of Sciences, Ekaterinburg, Russia
Electrical, electrochemical and isotopic exchange measurements on LaGaO₃-based ceramics

A70 E. Kh. Kurumchin, V.I. Tsidilkovski et al.; Russian Academy of Sciences, Ekaterinburg, Russia
Differences in the bulk and subsurface diffusivities of oxygen in complex oxides: isotopic exchange data

A 71 W. Kuncewicz-Kupczyk, D. Kobertz et al.; Forschungszentrum Jülich, Germany
Vaporization and thermodynamics of the Ga₂O₃-La₂O₃ system by Knudsen effusion mass spectrometry

A72 G. Gindorf and K. Hilpert; Forschungszentrum Jülich, Germany
Vaporization studies of pure chromia and chromium containing alloys in humid air

A73 C. Argirusis, M. Kilo et al.; Technical University of Clausthal, Germany
Interdiffusion between electrode and electrolyte materials for cathode supported SOFC's with thin film electrolytes

A74 A.C. Müller, B. Pei et al.; University of Karlsruhe, Germany
Properties of Ni/YSZ cermets depending on their microstructure

A75 U. Guntow, A.C. Müller* et al.; Fraunhofer-Institut, Würzburg, Germany; *University of Karlsruhe, Germany
Development of cathode supported SOFC's with MOD thin film electrolytes

A77 K.-D. Kreuer, A. Fuchs et al.; MPI stuttgart, Germany

Proton conducting alkaline earth zirkonates and titanates for high- drain electrochemical applications

A78 W. Münch, K.-D. Kreuer et al.; MPI stuttgart, Germany

Proton diffusion in perovskite-type oxides: Details of the diffusion mechanism investigated by quantum chemical simulations

A79 K. Przybylski, T. Brylewski and J. Prauch; University of Mining and Metallurgy, Cracow, Poland

High temperature oxidation of Fe-Cr steels with regard to their application as interconnectors for solid oxide fuel cells

A80 K. Przybylski, T. Brylewski and J. Prauch; University of Mining and Metallurgy, Cracow, Poland

Synthesis and physicochemical properties of (La,Sr)CoO₃ for SOFC application

A81 K. Ullrich and K.D. Becker; Technical University of Braunschweig, Germany

Defect kinetics in fayalite. Fe₂SiO₄

A82 N. Trofimenko and H. Ullmann; Technical University of Dresden, Germany

Structure-property relations of perovskite-type oxides: Application of Goldschmidt's tolerance factor to highly defective oxides

Coatings

A83 A.D. shevchenko; Ukrainian Academy of sciences, Kiev, Ukraine

Coating by copper in the high pressure of the metaloxide HTSC ceramics surface

A84 A.Y. Timoshkin; St. Petersburg state University, Russia

CVD of A₁₁₁B_v: gas phase cluster formation. Structures of intermediates and thermodynamics of association processes

A85 Y. Djaoued, P.V. Ashrit et al.; Universite de Moncton, shippagan, Canada

High temperature transformation of sol-gel derived TiO₂ thin films into TiN films

A86 O.V. Demirskaya, T.P. Rebrova et al.; Institute for Single Crystals, Kharkov, Ukraine

Preparation of ferroelectric films by pyrolysis of metal-organic solutions applied to substrates

A87 C. Metz, G. Wahl et al.; Technical University Braunschweig, Germany

Deposition of protective NiAl coatings on the internal surfaces of tubes

A88 V.M. Danilenko and A.M. Zaslavsky; IPM NAsU, Kiev, Ukraine

Theoretical investigation of laser oxides film deposition

A89 A.R. Kaul, O.Yu. Gorbenko et al.; Moscow state University, Russia

Unusual phases and unusual phase equilibria in epitaxial thin oxide films

A90 S. Shalamberidze; The Institute of Stable Isotopes, Tbilisi, Georgia

Pulse laser deposition of boron carbide thin films

Poster Presentations B

Diffusion

B 1 R. Bachorczyk, M. Danielewski and T. Walec; University of Mining and Metallurgy, Crakow, Poland

Intrinsic diffusivities and diffusion paths in Fe-Ni-Cu alloys

B 2 M. Danielewski, W. Krzyzanski* and R. Bachorczyk; University of Mining and Metallurgy, Crakow, Poland; *University of Buffalo, USA

Interdiffusion in multicomponent solid solutions: from diffusional structures in alloys to hyperbolic diffusion

B 3 M. Danielewski, R. Filipek et al.; University of Mining and Metallurgy, Crakow, Poland

Interdiffusion in oxidised ternary and higher alloys

B4 R. Bachorczyk, M. Danielewski et al.; University of Mining and Metallurgy, Crakow, Poland

Intrinsic diffusivities and thermal stability of multicomponent coatings

B 5 S.A. Kuznetsov and M. Gaune-Escard*; Russian Academy of Sciences, Murmansk, Russia; *CNRS, Marseille, France

Diffusion coefficients of refractory and rare-earth metal complexes in molten salts

B6 M. Ohtsuka, R. Cremer et al.; RWTH Aachen, Germany

Interdiffusion paths in the diffusion couple Y-Al₂O₃

B7 E.M. Fryt; Department of Mining and Metallurgy, Crakow, Poland

Properties of TiC at high temperatures

B8 T. Hehenkamp, R. Kerl and B. Köhler; University of Göttingen, Germany

Formation of equilibrium thermal defects and chemical diffusion in Fe Al-alloys

B9 H. Timm and J. Janek; University of Hanover, Germany

Demixing of oxides in a temperature gradient

Synthesis / Reactions

B 10 T. Nagasawa, H. Yamane and M. Shimada; Tohoku University, Sendai, Japan

Synthesis and crystal structure of new oxides in CaO-Y 2O₃-SiO₂ system

B 11 N. Bobrysheva, N. Chezhina and M. Osmolovski; St. Petersburg State University, Russia

High temperature oxide ceramic materials containing heterovalent magnetic atoms

B 12 A. Baykal, M. Kizilyalli and R. Kniep*; Technical University, Ankara, Turkey; *Technical University of Darmstadt, Germany

High temperature synthesis of Sr₃(BP₃O₁₃)

B 13 F .D. Meyer and H. Hillebrecht; University of Bayreuth, Germany

Ternary phases in the system Al/C/N

B 14 F.D. Meyer and H. Hillebrecht; University of Bayreuth, Germany

Ternary phases in the system Al/Si/C

B 15 P. Duerichen and R. Riedel; Technical University of Darmstadt, Germany

Novel precursor derived boron containing silicon carbonitrides: the influence of boron on high temperature stability

B 16 R.A. Andrievski; Russian Academy of Sciences, Moscow, Russia

Nanostructured high melting point compound-base materials: synthesis and properties

B 17 Y .K. Rao and C.H. Raeder; University of Washington, Seattle, USA

Steady-state chemical vapor transport in closed ampoule reactor: measured and predicted growth rates of SnS₂ crystals

B18 O.A. Bilous, M.P. Burka et al.; National Academy of Science, Kiev, Ukraine

The structure and high-temperature mechanical properties for ternary alloys based on chromium

B19 X. Zonghuang, L. Yan et al.; University of Beijing, P.R. China

Formation and irradiation-induced optical absorption in MeV boron ion implanted KNbO₃ optical waveguides

B 20 S. Okada, K. Kudou* et al.; Kokushikan University, Setagaya, Japan *Kanagawa University, Yokohama, Japan

Crystal growth and structure of NbsSn₂Ga by metal tin solutions and properties of the crystals

B21 S. Ranganathan, A.N. Bhagat* et al.; National Metallurgical Laboratory, Jamshedpur, India; *Tata Steel, Jamshedpur, India

Experimental investigations and thermodynamic prediction of the formation of complex precipitates during high temperature processing of high strength low alloy steels

B22 P. Saewong, K. Sujirote and P. Thavorniti; National Metal and Materials Technology Center, Bangkok, Thailand

A study of SiC fabrication from rice husk and its ash by Acheson process

B23 S. Shalamberidze, G. Kalandadze et al.; Institute of Stable Isotopes, Tbilisi, Georgia

Some peculiarities of sintering of boron and boron carbide

B24 Binbo Wei; Northwestern Polytechnical University, Xian, P.R. China

Undercooling phenomenon and rapid solidification of liquid metals and alloys

Modelling

B 26 P. Koukkari and K. Penttilä; VTT Chemical Technology, Finland
Coupled thermodynamic and kinetic models for high temperature processes

B 27 B. Hallstedt and L.J. Gauckler; ETH, Zürich, Switzerland
Thermodynamic modelling of oxide solid solutions and melt process- ing of Bi-2212 superconductors

B 28 G. Zhang and O. Ostrovski; University of New south Wales, Sydney, Australia
Kinetic modeling of synthesis of titanium carbide

B 29 E.B. Rudnyi; Moscow state University, Russia
Taking into account systematic errors during simultaneous assessment of materials properties

B 30 M. sukiennik and K. Gargul; University of Mining and Metallurgy, Crakow, Poland
The problem of properties modeling in associated solutions

B 31 L.N. Gorokhov and I. V. sidorova; Glushko Thermocenter of RAS, Moscow, Russia
Enhanced volatilization of uranium dioxide in presence of water vapor

B32 J.A. Golczwski, H.J. Seifert and F. Aldinger; MPI Stuttgart, Germany
A thermodynamic model of amorphous grain boundary phase in liquid-phase sintered β -SiAlON ceramic

B33 A.L. Udovsky and M.V. Kupavtsev*; Russian Academy of Sciences; Moscow, Russia; *Physical Technical University, Moscow, Russia

The computer realization of U-algorithm of thermodynamic calculation of isothermal sections of phase diagrams of ternary systems. Applica. tion to the Ni-Al-W system

B 34 N.E. Dubinin, V.V. Filippov* and N.A. Vatolin; Academy of sciences, Ekaterinburg, Russia; *Ekaterinburg Artillery Institute, Russia
Square-well fluid as a reference system in variational method

B35 T.V. Trefilova and N.E. Dubinin; Russian Academy of sciences, Ekaterinburg, Russia
Investigation of the binary liquid metal alloys thermodynamics using ORPA and theoretical dependence of pseudopotential parameter from alloy composition

B36 V.A. Gorelski and V.V. Kim; Tomsk state University, Russia
Numerical modeling of the possibility of gasless detonation in the system CuO+B under shock-wave leading in three dimensional statement

B37 H. Yokokawa, N. sakai et al.; National Institute for Materials and Chemical Research, Ibaraki, Japan
Generalization of chemical potential diagrams and its application to high temperature materials chemistry

Thermodynamics

B38 O.Y. Pankratova, R.A. Zvinchuk and A.V. Suvorov; St. Petersburg State University, Russia

Thermochemistry of non-stoichiometric titanium selenides and tellurides

B39 B. Blachnik and E. Klose; University of Osnabrück, Germany

Calorimetric study of liquid alloys and pathways of reactions in the system Bi-Sb-Se

B40 V.P. Zlomanov, A.Yu. Zavrazhnov* et al.; Moscow State University, Russia; *Voronezh State University, Russia

Manometric method in scanning the phase diagrams of low volatile Gallium chalcogenides using the auxiliary compounds

B41 R. Kainuma, Y. Inohana et al.; Tohoku University, Sendai, Japan

Partition of alloying elements between γ (Al) and O(Ni₃Nb:DOa) phases in the Ni-Fe-Cr-Nb base systems

B42 D.N. Kagan, G.A. Krechetova and E.E. Shpilrain; Russian Academy of Sciences, Moscow, Russia

Gibbs energy and enthalpy of formation for ternary alkali metal alloys at temperatures up to 1200 K

B43 V. Goryacheva, I. Kutsenok et al.; Moscow State University, Russia

Thermodynamic functions of amorphous alloys Co-Si-B

B44 B. Onderka, T. Pomianek* et al.; Polish Academy of Science, Crakow, Poland; *University of Technology, Rzesn6w, Poland

An experimental study on thermodynamics of Cu-As liquid solutions

B45 G.F. Voronin; Moscow State University, Russia

Prediction of thermodynamic properties and stability for solid chemical compounds

B46 V.L. Cherginets, O.V. Demirskaya and T.P. Rebrova; National Academy of Sciences, Kharkov, Ukraine

On relative oxoacidic properties of the eutectic melt BaCl₂-KCl-NaCl (0.43:0.29:0.28) at 700°C

B47 T.N. Kol'sova, G.D. Nipan and K.S. Gavrichev; Russian Academy of Sciences, Moscow, Russia

Solid solutions in the γ 2O₃-BaO-WO₃-CuO system

B48 H. Flandorfer, C. Luef and H. Ipser; University of Vienna, Austria

The In-Pd-Sb phase diagram

B49 W. Gasior, Z. Moser et al.; Polish Academy of Sciences, Crakow, Poland

Thermodynamic properties and the phase diagram of Al-rich part of Al-Si-Cu system

B 50 D. Labroche, J. Rogez* et al.; CEA, Pierrelatte, France; *CTM, Marseille, France

Thermodynamic and structural characterization of the UFeO and 4 U₃FeO₁₀ compounds

B 51 M.A. Turchanin, I.V. Belokonenko et al.; Donbass State Mechanical Engineering Academy, Kramatorsk, Ukraine

Enthalpies of formation of liquid binary Ni + (Ti, Zr, and Hf) alloys

B 52 N. Shelkova, A. Zaitsev and B. Mogutnov; I.P. Bardin Central Research Institute for Metal Physics and Functional Materials, Moscow, Russia

Physical and chemical properties and structure of metal-non metal high temperature solutions

B 53 P. Franke; RWTH Aachen, Germany

Thermodynamics and defect chemistry of mixed oxides with spinel structure

B 54 L.N. Gorokhov, G.A. Bergman et al.; Glushko Thermocenter of RAS, Moscow, Russia

Thermodynamic properties of lanthanide triiodides in condensed and gaseous states

B 55 L.C. Prasad and A. Mikula; University of Vienna, Austria

Effect of temperature on the surface properties of Cu-Sn liquid alloys

B 56 H. Näfe, F. Meyer and F. Aldinger; MPI Stuttgart, Germany

Electrochemical characterization of the equilibrium between Na- β and Na- β' -alumina as a function of the phase composition

B 57 S. Tanasescu, N.D. Totir et al.; Institute of Physical Chemistry, Bucharest, Romania

High temperature thermodynamic data of the Ca- and Sr-doped LaMnO_3

B 58 S. Tanasescu, N.D. Totir et al.; Institute of Physical Chemistry, Bucharest, Romania

A comparative study of the influence of compositional variables on the thermodynamic properties in the substituted lanthanum manganites

B 59 T.Ya. Velikanova, E.L. Semenova and T.G. Mazhuga; Academy of Sciences of Ukraine, Kiev, Ukraine

The Ti-Ni-Os ternary system

B60 O.I. Dovbenko, A.A. Bondar and T.Ya. Velikanova; Academy of Sciences of Ukraine, Kiev, Ukraine

The regularity in constitution of phase diagrams for the ternary systems formed by chromium and carbon with d-metals of V group

B61 V.M. Danilenko, A.A. Rubushevsky and T.A. Velikanova; National Academy of Science, Kiev, Ukraine

Thermodynamical evaluation on phase equilibria in Fe-Mo-Cr system

B62 L.V. Goncharuk, V.G. Khorujaya and V.R. Sidorko; National Academy of science, Kiev, Ukraine

Thermodynamic properties of alloys of scandium with iridium

B 63 R. Kesri, A. Adnane and s. Hamar- Thibault*; Laboratoire de Metallurgie structurale, El Alia Alger, Algier, Algeria; *ENsEEG, Saint Martin d'Heres, France

High temperature equilibria in iron rich FeVCuC alloys

B64 5.1. Lopatin; St. Petersburg State University, Russia

Regularities of vaporization behaviour of oxyacid salts

B65 K. Korniyenko*, A. Leithe-Jasper**, P. Roglet al.; University of Vienna, Austria; *Institute of Problems of Materials Science, Kiev, Ukraine; **Natl. Institute for Research in Organic Materials, Tsukuba, Japan

Constitution of the ternary systems Nb-B-C and Mo-B-C

B66 A. Yassin and R. Castanet*; University of Baghdad, Alm-Jadriyah, Iraq; *CNRS,- Marseille, France

Critical review limiting partial enthalpies of elements in liquid tin

B67 M. Yurechko, B. Grushko and V. Shemet; Forschungszentrum Jülich, Germany

Phase equilibrium in the Al-rich part of the Al-Pd-Co alloy system

B68 A.F. Maiorova, S.N. Mudretsova et al.; Moscow State University, Russia

Thermal properties of rare-earth manganites with colossal magnetoresistance

B69 A. Ciccioli, G. Balducci and G. Gigli; University of Rome, Italy

The stability of the PdX molecules (X=groups IIIA and IV A elements)

Corrosion

B 70 C. Konetschny and R. Riedel; Technical University of Darmstadt, Germany

High temperature properties of polymer derived amorphous Si-C-N materials

B71 H. Klemm, C. Schubert and w. Hermel; Fraunhofer-Institute, Dresden, Germany

High temperature oxidation of non-oxide silicon based ceramics

B72 E.H. Edwin, T. Arnesen et al.; Statoil R&D, Trondheim, Norway

Carburization test method tailored for ethylene cracker tubes

B73 C. Bertrand, A.L. Daltin et al.; Universite de Reims, France

Comparative study of the reaction of copper-nickel alloys (electrodeposited and rolled) at high temperature in pure oxygen

B75 V.Ya. Kudyakov, A.E. Domnin et al.; Institute of High Temperature Electrochemistry, Ekaterinburg, Russia

High temperature electrochemical corrosion of steel12Kh18Ni10Ti and its components in alkali carbonate melts at 500-650 oC

B 76 A. Ralison, F. Dettenwanger and M. Schütze; Dechema, Frankfurt, Germany

Oxidation of orthorhombic TiAlNb alloys at 800°C in air

B77 U. Koops and M. Martin; Technical University of Darmstadt, Germany

High temperature corrosion of cobalt based intermetallic compound CoGa

B 78 N.S. Jacobson, D. Myers and D. Zhz NASA Research Center, Cleveland, U5A; *East Central University, Ada, U5A; **Ohio Aerospace Institute, Brookpark, U5A

Rhenium-oxygen interactions at high temperatures

B79 Y. Ogura, M. Kondo et al.; Mitsubishi Heavy Industries, Yokohama, Japan

Oxidation behavior of γ 2SiO₅/SiC coating for C/C composites

B 80 K.-H. Hinssen, A.-K. Krüssenberg* et al.; Forschungszentrum Jülich, Germany; *Forschungszentrum Rossendorf, Germany

Oxidation of innovative carbon based materials for future energy systems

B81 M. O'Reilly, J. Corish and R.J. Fordham*; Trinity College, Dublin, Ireland; *European Commission JRC, Petten, The Netherlands

The effects of exposing hot pressed silicon nitride and rare earth silicon oxy-nitride phases to a high temperature H₂S rich gas environment

B 82 M. Makipaa and R.J. Fordham; JRC Petten, The Netherlands

Stability of some potassium and sodium ferrites in relation to chloride- enhanced oxidation

B83 T. Karwath, P. Biedenkopf et al.; Forschungszentrum Jülich, Germany

High temperature corrosion of ceramics against coal slags

Post Deadline Posters C

Assigned to and displayed together with Posters A 9- A 36 "Vaporization / Mass Spectrometry/Temperature Measurement II

C 1 D. Labroche, J. Rogez* et al.; CEA-VALRHO, Pierrelatte, France; *CTM, Marseille, France

New thermodynamic measurements and assessment in the U-Fe system -

C2 J. Svoboda and J. Sopousek*; Academy of Sciences of the Czech Republic, Brno, Czech Republic; *Masaryk University, Brno, Czech Republic

Simulation of kinetics of ferrite growth in Fe-C austenite with interface of finite mobility

C3 R.I. Sheldon, G.H. Rinehart et al.; Los Alamos National Laboratory, USA

The optical properties of liquid cerium at 632.8 nm

C4 G. Meloni and K.A. Gingerich; Texas A&M University, College Station, USA

Bond energies of ternary transition metal carbides from mass spectrometric equilibrium measurements

C5 K.A. Gingerich, R.W. Schmude, Jr., J.E. Kingcade, Jr., and G. Meloni; Texas A&M University, College Station, USA

Knudsen-effusion mass spectrometry study of tin clusters: Sn₂ -Sn₇

Assigned to and displayed together with Posters B 9- B 24 Synthesis /Reactions

C6 G. Krabbes; University of Dresden, Germany

High temperature reactions for controlling the low temperature properties of REBa₂Cu₃O₇ based superconducting ceramics