

**9^e COLLOQUE INTERNATIONAL SUR LA CORROSION ET LA PROTECTION
DES MATERIAUX A HAUTE TEMPERATURE**

**9th INTERNATIONAL SYMPOSIUM ON HIGH-TEMPERATURE CORROSION
AND PROTECTION OF MATERIALS**

Les EMBIEZ (Var) France – Mai/May 15-20, 2016

PROGRAMME-PROGRAM

DIMANCHE 15 MAI – SUNDAY MAY 15

14h-19h 30 Welcome of Participants (Hotel Hélios Front desk)

18h 30 Apéritif de bienvenue - Gathering Wine and Cheese party

19h 30



DINNER

20h 30 Ouverture et Présentation du Colloque - Symposium Opening and Opening Addresses
Daniel Monceau, Bruce Pint

21h15 Invited plenary lectures :

A unified view of deposit-induced corrosion (309)

*J. M. ALVARADO-OROZCO, J. E. GARCIA-HERRERA L. GARCIA-FRESNILLO B. S. LUTZ, and G H MEIER**

**University of Pittsburgh, USA*

Accelerated corrosion by carbon under both reducing and oxidising conditions (310)

D.J. YOUNG and J. ZHANG

University of New South Wales, Sydney, Australia

Mise en place des posters des sessions A+B+C -Posters from sessions A+B+C to be put in place

LUNDI 16 MAI – MONDAY MAY 16

SESSION A

FUNDAMENTALS

Chairmen: Gerald MEIER / Clara DESGRANGES

8h30 **PLENARY lecture: A thermodynamic approach to guide reactive element doping: Hf additions to NiCrAl (214)**

Thomas GHENO, Bi-Cheng ZHOU, Austin ROSS, Xuan LIU, Greta LINDWALL, Zi-Kui LIU, Brian GLEESON*

** University of Pittsburgh, USA*

9h10 **Keynote lecture: Oxide scales grown on wrought NiCrAl-base alloys: from protectiveness to breakaway oxidation (242)**
[Anton CHYRKIN*](#), Rishi PILLAI, Nooshin MORTAZAVI, Mats HALVARSSON, Daniel GRUNER, Joseph W. QUADAKKERS
* Forschungszentrum Jülich GmbH, Germany

9h40 **Keynote lecture: Internal Oxidation in Dry And Wet Conditions for Oxygen Permeability of Fe-Ni Alloys at 1,150°C and 1,100°C (162)**
[Aurélien PRILLIEUX*](#), Domingo JULLIAN, Jianqiang ZHANG, Daniel MONCEAU, David J. YOUNG
* School of Materials Science and Engineering, UNSW Australia / CIRIMAT, ENSIACET, Toulouse France

10h10



PAUSE CAFE – COFFEE BREAK

Chairmen: Yves WOUTERS / Dmitry NAUMENKO

10h30 **PLENARY lecture: Kinetic and structural processes affecting Al₂O₃-scale establishment during early-stage oxidation on Ni-base alloys (291)**
[Brian GLEESON*](#), Yihong, KANG, Wei ZHAO, Juan M. ALVARADO-OROZCO
* University of Pittsburgh, USA

11h10 **Keynote lecture: Properties of alumina/chromia scales in N₂ – Containing low oxygen activity environment investigated by experiment and theory (191)**
[Christine GEERS*](#), Vedad BABIC, Nooshin MORTAZAVI, Mats HALVARSSON, Bo JONSSON, Lars G. JOHANSSON, Itai PANAS, Jan E. SVENSSON
* Chalmers University of Technology, Sweden

11h40 **Keynote lecture: Characterization and lifetime estimation of a binary Ni-30Cr alloy Oxidized at 1150°C in oxygenated atmospheres ranging from 10-13 to 10-3 ATM O₂ (146)**
[Eric SCHMUCKER*](#), Carine PETITJEAN, Pierre-Jean PANTEIX, Laure MARTINELLI, Sabah BEN LAGHA, Michel VILASI
* Institut Jean Lamour, France / AREVA NC, France

12h10



LUNCH

After lunch **Séance posters des sessions A+B+C - Poster presentations from sessions A+B+C**

16h 30



PAUSE CAFE – COFFEE BREAK

17h30

Keynote lecture: Oxidation after breakaway oxidation of stainless steels at high temperature – Generic properties of FeCr(Ni) alloys (276)
[Torbjörn JONSSON*](#), Sten KARLSSON, Hamed HOOSHYAR, Mohammad SATTARI, Jesper LISKE, Jan E. SVENSSON, Lars G. JOHANSSON
* Chalmers University of Technology, Sweden

SESSION B

CORROSION IN C-CONTAINING ATMOSPHERES

Chairmen: David D. YOUNG / Fabien ROUILLARD

18h **Keynote lecture: Oxidation behaviour of nickel-chromium alloys in CO₂ atmosphere at 700°C (110)**
Thuan NGUYEN, Yun XIE, Shijie DING, [Jianqiang ZHANG*](#), David J. YOUNG
* UNSW, Australia

18h 30 **Keynote lecture: Relevance of carbon activity in defining the severity of a metal dusting environment (240)**

[Aurélie ROUAIX*](#), Aurélien FABAS, Sébastien DOUBLET, Daniel MONCEAU

* Institut Carnot CIRIMAT, France

19h 00



DINNER

21-22h

Séance posters des sessions A+B+C - Poster presentations from sessions A+B+C

MARDI 17 MAI – TUESDAY MAY 17

Before
lunch

Mise en place des posters des sessions D+F – Posters from sessions D+F to be put in place

SESSION C

OXIDATION IN WATER VAPOR

Chairmen: Brian GLEESON / Sébastien CHEVALIER

PLENARY lecture: Characterization of high-temperature material stability in water vapor utilizing a steam-jet furnace (225)

8h30

[Elizabeth OPILA](#)

University of Virginia, USA

Keynote lecture: The effect of water vapor on the formation of FeCr₂O₄ by solid state reaction of Fe and Cr₂O₃ at 1073K (237)

9h10

[Mitsutoshi UEDA*](#), Kotaro WATANABE, Toshio MARUYAMA, Masao TAKEYAMA

* Department of Metallurgy and Ceramics Science, Tokyo Institute of Technology, Japan

Keynote lecture: Effect of water vapor on the adherence at room temperature of alumina scales developed over aluminized superalloy (130)

9h40

[Gilles BONNET*](#), Maxime BROSSARD, Fernando PEDRAZA

* University of La Rochelle, France

10h10



PAUSE CAFE – COFFEE BREAK

Keynote lecture: Dual atmosphere effect on ferritic stainless steels – An inverse temperature effect (246)

10h30

[Patrik ALNEGREN](#), [Jan-Erik SVENSSON](#)

Chalmers University of Technology, Sweden

SESSION D

HIGH TEMPERATURE CORROSION AND MIXED OXIDANT (PART I)

Chairmen: Lars-Gunnar JOHANSSON / Jean-Michel BROSSARD

Keynote lecture: Effect of strengthening additions in a cast Ni-base superalloy on its oxidation resistance in oxidizing-sulfidizing environments (253)

11h

[Dmitry NAUMENKO*](#), Aleksandra JALOWICKA, Wojciech NOWAK, Joseph W. QUADAKKERS

* Forschungszentrum Jülich GmbH, Germany

Keynote lecture: Validation of hot corrosion risk model for gas turbine blading by ex-service components with thermal barrier coatings (270)

11h30

[Bettina BORDENET*](#), Wenke KONIG, Karl-Johan STEFANSSON

* General Electric, Switzerland

12h



LUNCH

After
lunch

Séance posters des sessions D+F - Poster presentations from sessions D+F

SESSION D

HIGH TEMPERATURE CORROSION AND MIXED OXIDANT (PART II)

Chairmen: *Michael SPIEGEL / Michel VILASI*

Keynote Lecture: High temperature corrosion resistance of Cr/Ni alloy on a carbonate molten salt for solar applications (192)

17h *Isabel LASANTA, Teresa DE MIGUEL, Gustavo GARCIA MARTIN, Victor ENCINAS SANCHEZ, Francisco [Javier PEREZ TRUJILLO*](#)*

** Grupo de Ingeniería de Superficies y Materiales Nanoestructurados, Universidad Complutense de Madrid, Spain*

Keynote lecture: The impact of microstructure on the corrosion of alloy 617 mod. in coal fired plants (275)

17h30 *[Michael SPIEGEL*](#), Miriam LANGE*

** Salzgitter Mannesmann Forschung GmbH, Germany*

Keynote lecture: Chlorine attack of carbon steel between 350-500°C and its importance regarding corrosion in waste incineration (178)

18h *[Mathias Christian GALETZ*](#), Ludmila KONRAD*

** Dechema Forschungsinstitut, Germany*

Keynote lecture: Fireside corrosion of self-fluxing coating protection in WTE plant: effect of flue-gas and metal temperature (209)

18h30 *[Fares MAAD*](#), Jean-Michel BROSSARD, Jérôme CHARTIER, Rémi CHAVROT, Yuzou KAWAHARA*

** Veolia Recherche et Innovation, France*

Keynote lecture: NaCl induced high temperature corrosion of Ti alloys (142)

19h *Clément CISZAK, [Ioana POPA*](#), Jean-Michel BROSSARD, Daniel MONCEAU, Sébastien CHEVALIER*

** ICB CNRS, University of Bourgogne, France*

19h30



DINNER

Invited lecture: Future directions in the field of high temperature corrosion research (307)

21h *[Michael SCHUETZE*](#) and [Joe QUADAKKERS**](#)*

**Dechema Forschungsinstitut **Forschungszentrum Juelich.*

22h-23h Séance posters des sessions D+F - Poster presentations from sessions D+F

MERCREDI 18 MAI – WEDNESDAY MAY 18

Before
lunch

Mise en place des posters des sessions E+G+H – Posters from sessions E+G+H to be put in place

SESSION E

MECHANICAL ASPECTS OF HIGH TEMPERATURE OXIDATION

Chairmen: *David SHIFLER / Eric ANDRIEU*

8h 30

PLENARY Lecture: Effect of strain on the high-temperature oxidation of Inconel[®] 740[®] and Haynes[®] 282[®] (231)

[Peter F. TORTORELLI](#), Kinga A. UNOCIC*

** Oak Ridge National Laboratory, USA*

Keynote lecture: Assesment of a mechanical model associated with oxide scale growth on T91 steel at 550°C under wet atmosphere (269)

9h10 *Marie-Christine DEMIZIEUX, Jérôme FAVERGEON*, Laure MARTINELLI, Clara DESGRANGES*
* University of Technology of Compiègne, France

Keynote lecture: Recent research on the oxidation of recycled and conventional hot-rolled carbon steels and their scale adhesion: a review (119)

9h 40 *Somrerak CHANDRA-AMBHORN*, Jennarong TUNGTRONGPAIROJ, Tanongsak SOMPHAKDEE, Anuwat JUTILARPTAVORN, Yasumitsu KONDO, Hiroshi TANEI, Thinnakorn PHADUNGWONG*
* King Mongkut's University of Technology North Bangkok, Thailand

10h10



PAUSE CAFE – COFFEE BREAK

Keynote lecture: Intergranular oxidation effects during dwell-time fatigue of high-strength superalloys (218)

10h 30 *Ulrich KRUPP*, Ken WACKERMANN, Hans-Jürgen CHRIST, Magnus HORNQVIST COLLIANDER, Krystyna STILLER*
*University of Applied Sciences Osnabrück, Germany

SESSION F

PROTECTIVE COATINGS AND THERMAL BARRIER COATINGS (PART I)

Chairmen: Bruce PINT / Stéphane MATHIEU

Keynote lecture: Aluminum solid solution coating for high temperature corrosion protection (201)

11h *Alina AGUERO*, Marcos GUTIERREZ, Raúl MUELAS, M. Juez-Lorenzo*
*INTA, Spain

Keynote lecture: Oxidation protection of SS304 by nano-sized powders modified organic silicone coatings (266)

11h30 *Cheng WANG*
Institute of Metal Research, China

12h



LUNCH

After
lunch

Après-midi libre -Unstructured afternoon
Social activities are planned for this afternoon.

17h00



PAUSE CAFE – COFFEE BREAK

SESSION F

PROTECTIVE COATINGS AND THERMAL BARRIER COATINGS (PART II)

Chairmen: John Nicholls / Fernando PEDRAZA

Keynote lecture: Evaluation of aluminide coatings as hardfacing material candidate in sodium fast reactor (177)

17h30 *Fabien ROUILLARD*, Brigitte DUPREY, Stéphane MATHIEU, Michel VILASI, Younes BOUIZI, Jean-Bernard VOGT, Ingrid PRORIOL-SERRE, Germain BOISSONNET, Fernando PEDRAZA*
*CEA, DEN, SCCME, LECNA, University of Paris, France

Keynote lecture: CMAS-induced degradation of adhesion of thermal barrier coatings (215)

18h *Vladimir TOLPYGO*
Honeywell Aerospace, USA

18h30 **Keynote lecture: Water vapor effects on CMAS degradation of thermal barrier coatings (132)**
[Bradley LUTZ*](#), R. Wesley JACKSON, Najeb ABDUL-JABBAR, Vladimir TOLPYGO, Carlos G. LEVI
**University of California, USA*

19h00 **PLENARY lecture: Accelerated aging of yttria-stabilized zirconia thermal barrier coatings in high water vapor content, elevates temperature environments (238)**
Timothy J. MONTALBANO, [Daniel R. MUMM*](#)
**University of California, USA*



BANQUET

20h **Evolution of Ideas and Techniques in the Field of High Temperature Oxidation (312),**
[Alain GALERIE](#)
Grenoble Institute of Technology, France

JEUDI 19 MAI – THURSDAY MAY 19

SESSION G

OXIDATION OF NEW MATERIALS AND COMPOSITES

Chairmen: John PEREPEZKO / Francis REBILLAT

9h **Keynote lecture: High temperature oxidation behavior of refractory high entropy alloys: effect of alloy composition (175)**
[Bronislava GORR*](#), Franz MUELLER, Hans-Jürgen CHRIST, Hans CHEN, Martin HEILMAIER
**University of Siegen, Germany*

9h30 **Keynote lecture: Novel SiC/SiC CMCs with high resistance against oxidation in air (252)**
[Kazuya SHIMODA*](#), Tatsuya HINOKI, Hideyuki MURAKAMI
**National Institute for Materials Science, Japan*



10h **PAUSE CAFE – COFFEE BREAK**

10h30 **Keynote lecture: Design of a self-healing thermal barrier coating for prolonged lifetime (200)**
[Willem G. SLOOF](#)
Delft University of Technology, Netherlands

11h **Keynote lecture: High-temperature properties of self-healing metal/oxide nanocomposites (167)**
[Makoto NANKO](#)
Nagaoka University of Technology, Japan

11h 30 **Keynote lecture: High temperature decomposition of an Fe and Cr doped NiO produced by a novel flame spray technique (204)**
Mark DUFFIELD, [Gordon J. TATLOCK*](#), John LEWIS
**University of Liverpool, UK*



LUNCH

14h-15h30 **TIME SLOT RESERVED TO ORGANIZE BUSINESS MEETINGS (use this time slot at your convenience to organize parallel business meetings)**
CEFRACOR meeting.

After noon **Séance posters des sessions E+G+H -Poster presentations of sessions E+G+H**



PAUSE CAFE – COFFEE BREAK

16h40

SESSION H

ADVANCED CHARACTERIZATION TECHNIQUES (PART I)

Chairmen: Philippe MARCUS / Tony FRY

17h **PLENARY lecture: Grain boundary chemistry and transport through alumina scales on an atomic scale (165)**

[Torben BOLL*](#), Kinga A. UNOCIC, Bruce A. PINT, Krystyna STILLER

*Chalmers University of Technology, Sweden

17h40 **Keynote lecture: Interfacial chemistry in thermally grown alumina (249)**

Yimeng CHEN, Roger C. REED, [Emmanuelle A. MAROUIS](#)

*University of Michigan, USA

18h10 **Keynote lecture: Zirconium Carbide Oxidation: Maltese Cross Formation and Interface Characterization (277)**

[Claudia GASPARRINI*](#), Renaud Podor, Denis Horlait, Richard Chater and William Edward Lee

*Imperial College London, UK

18h40 **Keynote lecture: NiAl oxidation reaction processes studied in situ using mems-based-closed-cell gas reaction transmission electron microscopy methods (255)**

[Kinga A. UNOCIC*](#), Larry F. ALLARD, Bruce A. PINT

*ORNL, USA

19h10



DINNER

21-22h **Séance posters des sessions E+G+H - Poster presentations of sessions E+G+H**

VENDREDI 20 MAI – FRIDAY MAY 20

SESSION H

ADVANCED CHARACTERIZATION TECHNIQUES (PART II)

Chairmen: Shigenari HAYASHI / Gordon TATLOCK

8h30 **Keynote lecture: Recent advances in in situ investigation of oxidation of metals and alloys using TOF-sims (294)**

[Philippe MARCUS](#)

CNRS-Chmie Paris Tech, France

9h **Keynote lecture: Intergranular oxidation of nickel base alloys: potentialities of focused ion beam tomography (199)**

[Cécilie DUHAMEL*](#), Jacqueline CABALLERO, Thierry COUVANT, Jérôme CREPIN, Fabrice GASLAIN, Catherine GUERRE, Hong-Thai LE, Mickaël WEHBI

*Mines Paris Tech, France

9h 30 **Keynote lecture: Photoelectrochemical and STEM/EDX investigations on an oxide scale grown on a chromia-forming alloy under very low oxygen partial pressure: a complex oxide scale (104)**
*Laurence LATU-ROMAIN**, Youcef MADI, Stéphane MATHIEU, Jean-Pierre PETIT, Yves WOUTERS
**University of Grenoble SIMaP Laboratory, France*

10h **BEST POSTER AWARD PRESENTATION** *Intern'l Jury*

CONCLUSIONS OF THE SYMPOSIUM

- 10h 10**
- *Highlights of scientific conclusions from the conference (XXX)*
 - *Analysis of the survey (Bruce PINT)*
 - *Conclusion (Bruce PINT)*

12h

 **LUNCH** *(optional, with reservation)*

SESSION A

FUNDAMENTALS

- ID 115** **Definition of optimized conditions to extract accurate kinetic laws from TGA experiments: modelling and validation**
Matthieu ZANCANARO, Nathalie BERTRAND, Francis REBILLAT
Laboratoire des Composites Thermostructuraux, LCTS, France
- ID 117** **Modelling of simultaneous oxidation and volatilization phenomena along a crack in a self-healing multiconstituent material**
Coraline SIMON, Francis REBILLAT
Laboratoire des Composites Thermostructuraux, France
- ID 151** **Experimental and thermodynamic analysis of differences in phase transformation of Pt-modified nickel aluminide coating during isothermal and cyclic oxidation**
Vladimir A. ESIN, Vincent MAUREL
MINES ParisTech, Centre des Matériaux, France
- ID 154** **The effect of Cr on oxidation of Fe-Cr-Al alloys at lower temperatures**
Suzue YONEDA, Shigenari HAYASHI
Tokyo Institute of Technology, Japan
- ID 158** **A comparison of thermally grown chromia scales formed on pure Cr, NiCr- and FeCr-model alloys at high temperatures: scale growth mechanism and kinetics, scale morphology and microstructure**
Michael HÄNSEL, Vladimir SHEMET, Dirk SIMON, Bronislava GORR and Hans-Jürgen CHRIST
Forschungszentrum Jülich GmbH, Germany
- ID 164** **Role of elements on the metastable-stable phase transformation and growth rate of AL203 scale**
Shigenari HAYASHI, Yuto TAKADA, Yuri KITAJIMA, and Ali SHAABAN
Tokyo Institute of Technology, Japan
- ID 183** **A study of the influence of the oxygen partial pressure on the oxidation mechanism of HR120**
Xavier LEDOUX, Eric SCHMUCKER, Stéphane MATHIEU, Michel VILASI, Yves WOUTERS, Sébastien CHEVALIER
Institut Jean Lamour - University of Lorraine, France
- ID 186** **Oxygen vacancy formation, mobility and hydrogen pick-up during oxidation of zirconium by water**
Mikaela LINDGREN and Itai PANAS
Chalmers University of Technology, Sweden
- ID 193** **Oxygen diffusion through dense ceramic based on mixed ionic and electronic conducting oxide – new tools for SOFC oxygen electrode selection**
Fabrice MAUVY
ICMCB-CNRS-Université de Bordeaux, France
- ID 196** **Modeling of the deflection test for the stress field prediction in high temperature oxidation**
David FETTRE, Salima BOUVIER, Jérôme FAVERGEON
Université de Technologie de Compiègne, France
- ID 207** **The influence of sulfur on high temperature corrosion of Fe-Cr model alloys**
Kathrin NUETZMANN, Axel KRANZMANN, Christiane STEPHAN
Federal Institute for Materials Research and Testing, Germany
- ID 219** **Phase relations and structural properties of oxide and sulfide phases in corrosion zones of Fe-Cr model alloys**
Christiane Stephan, Kathrin Nützmänn, Axel Kranzmann
Freie Universität Berlin, Department for Earth Science, Mineralogy, Germany
- ID 221** **Modeling of intergranular oxidation by the cellular automata approach**
Katrin JAHNS, Kamil BALINSKI, Martin LANDWEHR, Vicente Braz TRINDADE, Jürgen WÜBBELMANN, Ulrich KRUPP
University of Applied Sciences, Germany

- ID 245 Predicting the microstructure of diffusion coatings during manufacturing and degradation in service**
Rishi PILLAI, Anton CHYRKIN, Timur GALIULLIN, Wojciech NOWAK, Daniel GRÜNER, Willem Joseph QUADAKKERS
Forschungszentrum Jülich GmbH, Germany
- ID 250 Effects on oxygen vacancy diffusivity of substitutional 3D elements doping in α -alumina**
Vedad Babic, Christine Geers, Bo Jönsson, Jan-Erik Svensson, Lars-Gunnar Johansson, Itai Panas
Chalmers University of Technology, Energy and Materials, Sweden
- ID 257 The effect of Pt content on the scale development on β -NiAl at very early oxidation stages**
Jerzy JEDLIOSKI, Jean Luc GROSSEAU-POUSSARD, Jarosław DĄBEK, Brian GLEESON, Marek NOCUO, Remigiusz GOŁDYN
AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY, Poland
- ID 261 Microstructure evolution during the oxidation of pre-strained AISI 304L stainless steel under pure oxygen at 850 °c**
Audrey COL, Céline PASCAL, Yves WOUTERS, Valérie PARRY
SIMAP, France
- ID 262 On the role of oxygen partial pressure on the composition of the oxide layer formed on alloy 690 at 700°C**
Magali MOËGLEN, Stéphane PERRIN, Loïc MARCHETTI, Michel TABARANT, Marc FOUCAULT, Yves WOUTERS
CEA, DEN, DPC, SCCME, Laboratoire d'Étude de la Corrosion Aqueuse, France
- ID 263 Modelling oxidation related microstructural changes and life time limits of thin-walled components of Ni-based alloys in the temperature range 900 – 1050°C**
A. JALOWICKA, R. DUAN, K.A. UNOCIC, B.A. PINT, P. HUCZKOWSKI, A. CHYRKIN, D. GRÜNER, W.J. QUADAKKERS
Forschungszentrum Jülich GmbH, Germany
- ID 279 Oxidation of 316L(N) stainless steel in liquid sodium at 550°C**
Matthieu RIVOLLIER, Jean-Louis COUROUAU, Marie-Laurence GIORGI, François JOMARD, Cécile BLANC, Michel TABARANT
CEA, DEN, DANS, DPC, SCCME, Laboratoire d'Étude de la Corrosion Non Aqueuse, France
- ID 280 Modelling of two stages oxygen tracer experiments during oxidation of metals with a high oxygen solubility**
Benoît MAZERES, Clara DESGRANGES, Caroline TOFFOLON-MASCLET, Daniel MONCEAU
CIRIMAT, France
- ID 285 Effect of nitrogen on the kinetics of oxide scale growth and of oxygen dissolution in the titanium-based alloy Ti6242S**
Charlotte DUPRESSOIRE, Aurélie ROUAIX, Philippe EMILE, Claude ARCHAMBEAU-MIRGUET, Raphaëlle PERALDI, Daniel MONCEAU
Airbus Operations SAS, France
- ID 303 Modeling of the effect of grain boundary diffusion on the oxidation of Ni-cr alloys at high temperature**
Léa BATAILLOU, Clara DESGRANGES, Laure MARTINELLI, Daniel MONCEAU
CEA Saclay, DEN, DPC, SCCME, France
- ID 311 Dissolution of chromium carbides beneath external α -Al₂O₃ scale grown on Alloy 602 CA by pre-oxidation**
Rishi PILLAI, Timur GALIULLIN, Anton CHYRKIN, Daniel GRÜNER, Willem Joseph QUADAKKERS
Forschungszentrum Jülich GmbH, Institute for Energy and Climate Research IEK-2, Jülich, Germany
- ID 114 Carburization behavior of steels in high temperature sodium**
Marie ROMEDENNE, Fabien ROUILLARD, B. DUPREY, Christine GUENEAU, Didier HAMON, M. TABARANT, Daniel MONCEAU
CEA, DEN, DPC, SCCME, LECNA, Université Paris Saclay, France
- ID 189 Kinetics of duplex oxide growth on 9Cr steels exposed in CO₂: application of dimensional metrology**
Joy SUMNER, Nigel SIMMS, Aya SHIN, Jonathan PEARSON
Cranfield University, U K
- ID 234 Effect of thermal cycling on compatibility in CO₂ for concentrated solar power applications**

- ID 271** **The effect of temperature and carbonyl sulphide concentration on carbon deposition on 20Cr25Ni stainless steel**
M.P. Taylor, H.E. Evans, P.J. Smith, Y.L. Chiu, R. Ding, B.J. Connolly, C.W. Mowforth, Neal Smith and L. Pearson
The University of Birmingham
- ID 288** **Materials performance in supercritical CO₂ in comparison with supercritical steam**
Gordon R. HOLCOMB, Ömer N. DOĞAN, Casey CARNEY, Kyle ROZMAN, Jeffrey A. HAWK, and Mark H. ANDERSON
NETL, USA
- ID 112** **Analysis of water vapor oxidation of metals by measuring the partial pressures of hydrogen and oxygen**
Michihisa FUKUMOTO, Hiroshi SONOBE, Motoi HARA, Hiroyuki KANEKO
Akita University, Japan
- ID 125** **Behaviour of slurry aluminized austenitic steels under steam at 650 and 700°C**
Fernando PEDRAZA, Claire BOULESTEIX, Manuel PROY, Isabel LASANTA, Teresa de MIGUEL, Andrea ILLANA, Francisco Javier PEREZ
Université de La Rochelle, France
- ID 126** **Steam oxidation resistance of slurry aluminium and aluminium/silicon coatings on steel for ultrasupercritical steam turbines**
Claire BOULESTEIX, Fernando PEDRAZA, Manuel PROY, Isabel LASANTA, Teresa de MIGUEL, Andrea ILLANA, Francisco Javier PEREZ
Université de La Rochelle, France
- ID 137** **Effect of pure oxygen and pure water vapour under pressure on Mn-Co-Fe coated interconnector alloys for steam electrolysis (SOE)**
Vladislav KOLARIK, Maria del Mar JUEZ LORENZO, Veronica KUCHENREUTHER-HUMMEL, Martin PÖTSCHKE, Danilo SCHIMANKE
Fraunhofer ICT, Germany
- ID 161** **Influence of water vapour on the Zircaloy-4 oxidation at 700°C – stress determination by in situ x-ray diffraction**
Raphaël ROLLAND, Henri BUSCAIL, Christophe ISSARTEL
LVEEM, Uda France
- ID 174** **Effect of atmosphere and sample thickness on kinetics, microstructure and compressive stresses of chromia grown on Ni-25Cr**
Dirk SIMON, Bronislava GORR, Hans-Jürgen CHRIST
Universität Siegen, Institut für Werkstofftechnik, Germany
- ID 227** **Influence of the water vapor presence on the high temperature oxidation behavior of two chromium-rich cobalt-based alloys**
Patrice BERTHOD, Lionel ARANDA, Thierry SCHWEITZER, Pascal VILLEGIER
Institut Jean Lamour, France
- ID 233** **Evaluation of Fe-Cr alloys for accident tolerant fuel cladding**
Bruce PINT and Kinga UNOCIC
Oak Ridge National Laboratory, USA
- ID 235** **Effect of Al and Cr content on air and steam oxidation of FeCrAl alloys and commercial APMT alloy**
K.A. UNOCIC, Y. YAMAMOTO and B.A. PINT
ORNL, USA
- ID 272** **Oxidation kinetics and hydrogen uptake of titanium alloys in pressurized water reactors (PWR) primary water**
Frantz MARTIN, Quentin AUZOUX, Quentin BIGNON, Vincent AMICEL, Frédéric MISERQUE, Léa NOIROT-COSSON, Michel TABARANT, Yves WOUTERS

- ID 284** **Substrate finishing and niobium content effects on the high temperature corrosion resistance in steam atmosphere of CrN/NbN superlattice coatings deposited by PVD-HiPIMS**
Andrea ILLANA, Arutiun EHIASARIAN, María Isabel LASANTA, María Teresa de MIGUEL, Sonia MATO, Papken HOVSEPIAN, Francisco Javier PEREZ TRUJILLO
Universidad Complutense de Madrid, Spain
- ID 296** **High temperature oxidation of Zircaloy-4 in air and air + steam atmospheres studied by TGA and ¹⁸O tracer diffusion combined with Raman imaging.**
Anne KASPERSKI, Christian DURIEZ, Michel MERMOUX
Univ. Grenoble Alpes, LEPMI, France
- ID 236** **Effect of oxidation in steam on the creep properties of advanced 9Cr-1Mo steels**
Sebastien DRYEPONDT and Dana MCCLURG
Oak Ridge National Laboratory, USA
- ID 105** **Deposit build-up and corrosion in a copper flash smelting heat recovery boiler**
Juho LEHMUSTO, Daniel STENLUND, Mari LINDGREN, Patrik YRJAS
Abo Akademi University, Finland
- ID 107** **Influence of sodium hydroxide on the austenitic 330Cb alloy oxidation at high temperature.**
BUSCAIL Henri, ROLLAND Raphaël, ISSARTEL Christophe, RIFFARD Frédéric, COMBE Cécile, CARDEY Pierre François
LVEEM Uda, France
- ID 108** **Hot corrosion attack of Mo-Si-B coating**
Matthew TAYLOR, John PEREPEZKO
University of Wisconsin Madison, USA
- ID 111** **Hot salt corrosion studies on Inconel 718 and SU 263 Alloys and its effect on Mechanical Properties for use in Marine Gas Turbine Engine**
Prof. A.S.KHANNA
IIT Bombay, India
- ID 121** **Coatings for boiler components exposed to vanadium containing oil ash in oxidizing and syngas atmospheres**
Xabier MONTERO, Francisco Javier PEREZ TRUJILLO, Mathias.C. GALETZ
DEHEMA-Forschungsinstitut, Germany
- ID 147** **Corrosion mechanisms of Ni-30Cr alloy in molten silicates at 1150 °C**
Eric SCHMUCKER, Carine PETITJEAN, Pierre-Jean PANTEIX, Laure MARTINELLI, Sabah BEN LAGHA, Michel VILASI
Institut Jean Lamour, France
- ID 150** **Dissolution of rare-earth oxides in molten silicate : stability of silicate phases Ca₂Re₈(SiO₄)₆O₂ and Ca₃Re₂Si₆O₁₈**
PERRUDIN François, VIDAL-SETIF Marie-Hélène, PETITJEAN Carine, PANTEIX Pierre-Jean, RIO Catherine, LAVIGNE Odile, VILASI Michel
Onera/DMSM, France
- ID 166** **Effect of fuel content on type i hot corrosion attack in low velocity burner rig and development of an automated image analysis sample assessment protocol for evaluating extent of attack**
Kliah N. Soto LEYTAN, Timothy MONTALBANO, Daniel MUM
University of California Irvine, USA
- ID 169** **Corrosion behavior between molten Fe-B₄C and solid Zircaloy by soak experiment at high temperatures.**
Suguru MATSUURA, Kazuki ONODA, Makoto NANKO, Masaki KURATA
Nagaoka university of technology Japan, Japan
- ID 172** **The effects of Cl in the inner corrosion layer on corrosion behaviour of Ti60 alloy under a solid NaCl deposit in wet oxygen flow at 600 °C**
Lei FAN, Liu LI, Ying LI, Fuhui WANG
Institute of Metal Research, Chinese Academy of Sciences, China
- ID 173** **Corrosion of welds in biomass power plants**
Melanie MONTGOMERY, Kristian Vinter DAHL, John HALD

- ID 190** **Laboratory investigations of Ni-Al coatings exposed to conditions simulating biomass firing**
Duoli WU, Sunday CHUKWUDI OKORO, Kristian VINTER DAHL, Melanie MONTGOMERY, Karen PANTLEON, John HALD
Department of Mechanical Engineering, Technical University of Denmark, Denmark
- ID 198** **Impact of test cycle on hot corrosion: CMSX-4 example**
Joy SUMNER, Simon GRAY
Cranfield University, UK
- ID 247** **HVOF and laser clad Fe-Cr-B coating in simulated biomass combustion: microstructure and fireside corrosion**
Liam REDDY, Tanvir HUSSAIN, Philip SHIPWAY, Colin DAVIS
Faculty of Engineering, University of Nottingham, UK
- ID 281** **Corrosion behavior of a AISI-316 SS grade in nitrogen environment for a sodium-gas heat exchanger**
BOSONNET Sophie, GINESTAR Kevin, TABARANT Michel, GOSSET Dominique
CEA, France
- ID 282** **The influence of small amounts of KCl(s), NaCl(s) with 500vppm HCl on the high temperature oxidation of a Fe-2.25Cr-1Mo steel at 400°C**
Erik LARSSON, Torbjörn JONSSON, Jesper LISKE
Chalmers university of technology, Sweden
- ID 283** **Microstructural study of the influence of KCl and HCl on preformed corrosion product layers on T22 and 304L**
M.A. OLIVAS-OGAZ, J. EKLUND, S. KARLSSON, T. JONSSON, J. LISKE, J-E. SVENSSON
Chalmers University of Technology, Sweden
- ID 293** **Ceramic corrosion in liquid sodium: Alumina, Zirconia and Hafnia ceramics behaviour at 450°C and 550°C in static conditions**
Jean-Louis COUROUAU, Marlu-César STEIL, Jacques FOULETIER, Véronique LORENTZ, Patrick BONNAILLIE, Anthony MUCCIOLI, Jonathan UNGER, Sandy TRICOIT, Michel TABARANT
EA, DEN, DANS, DPC, SCCME, LECNA, France
- ID 300** **Effect of lead content in used wood fuel on furnace wall corrosion of 16Mo3, 304L and Alloy 625**
Annika TALUS, Rikard NORLING, Leyla WICKSTRÖM, Anders HJÖRNHEDE
Swerea KIMAB AB, Sweden
- ID 113** **Modelling of the mechanical behaviour of a chromia forming Alloy under different thermal loadings**
Zhaojun TAO, Felaniaina RAKOTOVAO, Jean-Luc GROSSEAU-POUSSARD, Benoît PANICAUD, Guillaume GEANDIER, Pierre-Olivier RENAULT, Philippe GOUDEAU, Nathalie BOUDET, Nils BLANC
Université de Technologie de Troyes, France
- ID 120** **Development of the scale adhesion assessment using a tensile testing machine equipped with a CCD camera**
Thanasak NILSONTHI, Wannapha ISAARD and Somrerk CHANDRA-AMBHON
King Mongkut's University of Technology North Bangkok, Thailand
- ID 152** **Effect of strip thickness on mechanical adhesion of thermal oxide scale of hot-rolled low carbon steel strip**
Thinnakorn Phadungwong, Komsan Ngamkham, Kumpanat Sirivedin1, Somrerk Chandra-ambhon
King Mongkut's University of Technology North Bangkok, Thailand
- ID 155** **Chromium depleted zone in nickel base Alloy: experimental study of chromium diffusion between 350°C and 500°C**
Josiane NGUEJIO, Jérôme CREPIN, Cécilie DUHAMEL, Catherine GUERRE, François JOMARD
CEA, DEN, DPC, SCCME Laboratoire D'Etude De La Corrosion Aqueuse, France
- ID 157** **Stress build-up and relaxation in chromia scales during high temperature oxidation**
Felaniaina RAKOTOVAO, Zhaojun TAO, Benoît PANICAUD, Patrick GIRAULT, Gilles BONNET, Jean-Luc GROSSEAU-POUSSARD, Guillaume GEANDIER, Pierre-Olivier RENAULT, Philippe GOUDEAU, Nathalie BOUDET, Nils BLANC, Hugo VITOUX, Bernard GORGES
Université de La Rochelle, France

- ID 203** **Stress-induced corrosion of titanium alloys under partial hydrogen pressure**
Vincent DUQUESNES, Nicolas CRETON, Steeve DEJARDIN, Tony MONTESIN, Elise DELOYE
Université Bourgogne Franche-Comté, France
- ID 268** **Relations between oxidation induced microstructure and mechanical durability of oxide scales**
Valérie PARRY, Céline PASCAL, Muriel BRACCINI, Elena FEDOROVA, Marc MANTEL, Yves WOUTERS, Djar OQUAB, Daniel MONCEAU, Guillaume PARRY
Grenoble University, France
- ID 122** **To optimize the protection efficiency of silicate environmental barrier coating (EBC) from its microstructure**
Simon ARNAL, Fabrice MAUVY, Francis REBILLAT
LCTS, France
- ID 123** **Enhanced oxidation resistance of single phase (Ni,Pt)Al coating by Hf dopant**
Yingfei YANG, Chengyang JIANG, Zebin BAO, Shenglong ZHU, Fuhui WANG
Institute of Metal Research, Chinese Academy of Sciences, China
- ID 124** **Thermal properties of new coatings on steels for supercritical steam power plants**
Germain BOISSO Mines ParisTech, France NNET, Gilles BONNET, Josseline BALMAIN, Fernando PEDRAZA
Université de La Rochelle, France
- ID 127** **Reactivity of Al-Cr microparticles for slurry aluminizing purposes**
Benjamin GRÉGOIRE, Gilles BONNET, Fernando PEDRAZA
University of La Rochelle, France
- ID 128** **Cracks sealing of aluminized austenitic steels and their oxidation behaviour**
Claire BOULESTELX, Fernando PEDRAZA
Université de La Rochelle, France
- ID 129** **Mechanical and thermo-physical properties of plasma sprayed thermal barrier coatings: a literature survey**
Pierre PLANQUES, Vanessa VIDAL, Philippe LOURS, Vincent PROTON, Fabrice CRABOS, Julitte HUEZ, Bernard VIGUIER
CIRIMAT, France
- ID 149** **Oxidation performance of repaired aluminide coatings on austenitic steel substrates**
Claire BOULESTELX, Benjamin GREGOIRE, Fernando PEDRAZA
Université de La Rochelle, France
- ID 153** **Initial oxidation behavior of ferritic stainless steel with sputtered Mn-Cu coating**
Shujiang GENG, Hechang WANG, Fuhui WANG
Northeastern University, China
- ID 156** **Preliminary high temperature oxidation experiments of the slurry aluminized deformable austempered ductile iron (DADI)**
Olga TSURTSUMIA, Nugzar KHIDASHELI, Elguja KUTELIA, Benjamin GREGOIRE, Fernando PEDRAZA
Georgian Technical University, Georgia
- ID 179** **Thermo-physical properties of as deposited and aged state-of-the art and advanced thermal barrier coatings (TBC) for gas turbines**
Federico CERNUSCHI, Paolo BISON, Daniel E. MACK, Stefano BOLDRINI, Stefano MARCHIONNA, Alessia FLAMENGO, Alessandro MOSCATELLI, Stefano CONCARI
RSE, Italy
- ID 182** **Influence of the slurry thickness and heat treatment parameters on the formation of aluminium diffusion coatings**
Jorge BERMEJO SANZ, Vladislav KOLARIK, Maria del Mar JUEZ LORENZO
Fraunhofer Intitut for Chemical Technology, ICT, Germany
- ID 185** **Fireside corrosion of chromium and aluminium coated ferritic-martensitic steels**
Diana FÄHSING, Mathias C. GALETZ, Michael SCHÜTZE
DEHEMA-Forschungsinstitut, Germany
- ID 195** **EBC developpement fof enhanced high temperature ceramic matrix composite**

- ID 216** **Beneficial effect of a pre-ceramic polymer coating on the protection at 900°C of a commercial AISI 304 stainless steel**
Frédéric RIFFARD, Eva JOANNET, Henri BUSCAIL, Raphaël ROLLAND, Sébastien PERRIER LVEEM, France
- ID 217** **Assessment of coating performance on waterwalls and superheaters in a pulverised fuel fired power station**
*Nigel SIMMS, Maud SERAFFON, Andy PIDCOCK, Colin DAVIES
CRANFIELD UNIVERSITY, UK*
- ID 220** **Electrodeposition of oxidation-resistant interdiffusion layers on plain carbon steel: experimental characterization and simulation**
*Kamil BALINSKI, Katrin JAHNS, Martin LANDWEHR, John NICHOLLS, Jürgen WÜBBELMANN, Ulrich KRUPP
University of Applied Sciences, Germany*
- ID 228** **Iron and copper doped manganese cobalt spinel coatings for soft interconnects oxides as protective**
*Belma TALIC, Sebastian MOLIN, Peter Vang HENDRIKSEN, Kjell WIJK, Hilde Lea LEIN
Norwegian University of Science and Technology, Norway*
- ID 229** **Protective coatings for SOFC interconnects - influence of coating density**
*Belma TALIC, Peter Vang HENDRIKSEN, Kjell WIJK, Hilde Lea LEIN
Norwegian University of Science and Technology, Norway*
- ID 230** **High temperature oxidation of a ceramic-intermetallic composite prepared by spark plasma sintering for a new self-healing thermal barrier coating**
*F.NOZAHIC, C.ESTOURNES, D.MONCEAU
CIRIMAT, ENSIACET – MEMO, France*
- ID 251** **The effect of the Hf+x –additions (x = 0, y or Si) on the oxidation behaviour of β-NiAl bond-coat material**
*Jerzy JEDLIŃSKI, Jarosław DĄBEK, Janusz PRAŻUCH, Sylwia BLAJER, Marek NOCUN, Remigiusz GOŁDYN, Zbigniew ŻUREK
AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY, Poland*
- ID 260** **Oxidation behaviour of Ir and Ir-3Hf alloys with and without aluminizing treatment**
*Hideyuki MURAKAMI, Masahide YAMASHINA, Kazuya SHIMODA
National Institute for Materials Science, Japan*
- ID 274** **The use of thermal barrier coatings in corrosive environments**
*Jonathan WELLS, Neil CHAPMAN, Joy SUMNER, Paul WALKER
Siemens Industrial Turbomachinery Limited, UK*
- ID 287** **Heat transfer due to heat flow of plasma gas over spherical particles**
*Mohammed SAHNOUN, Abderrahmane AISSA
University of Mascara – Algeria, Algeria*
- ID 295** **Effect of ceria doped cobalt spinel coatings on the oxidation of high chromium ferritic steels**
*Tobias Holt NØRBY
Haldor Topsøe A/S, Denmark*
- ID 302** **Effect of microstructure on the deposit-induced attack of a prototypical NiCoCrAlY coating composition**
*Dong IK KIM, Byung-Kyu KIM, Thomas GHENO, Brian GLEESON
Korea Institute of Science and Technology, South Korea*
- ID 304** **Comparison of oxidation behavior of shot peened plasma spray coatings with cold gas dynamic spray coatings**
*Abdullah Cahit KARAOGLANLI, Kadir Mert DOLEKER
Bartın University, Turkey*
- ID 305** **Investigation of isothermal oxidation behaviors of thermal barrier coatings (TBCs) consisting of YSZ and multilayered YSZ/Gd₂Zr₂O₇ ceramic layers**
*Kadir Mert DOLEKER, Abdullah Cahit KARAOGLANLI
Bartın University, Turkey*

- ID 306** **Comparison of the high temperature behaviour of aluminum slurry coating on P91 in different oxidizing atmospheres**
Pauline AUDIGIÉ, Raúl MUELAS, Fabien ROUILLARD and Alina AGÜERO
Instituto Nacional de Técnica Aeroespacial INTA, Spain
- ID 244** **Influence of oxidation and thermo-mechanical loading conditions on rumpling, ductility and phase transformation in aluminide coating**
Vincent MAUREL, Pierre SALLOT, Vladimir A. ESIN, Alain KÖSTER, Luc RÉMY, Paul BRETON
Mines ParisTech, France
- ID 313** **Isothermal oxidation behaviour of Ni-based thermal spray coatings produced by HVOF, HVOF and plasma spaying techniques**
E. Sadeghimeresh, J. Wennberg, N. Markocsan, S. Joshi, P. Nylén
Department of Engineering Science, University West, Trollhättan, Sweden
- ID 103** **Influence of the cooling temperature on the behavior of an oxidized self-healing ceramic matrix composite**
Rémi BERTRAND, Gerald CAMUS, Francis REBILLAT
Laboratoire des Composites Thermostructuraux, France
- ID 116** **Effect of the nanocrystallization on pure iron nitriding kinetics**
LACAILLE Victor, PERES Véronique, KERMOUCHE Guillaume, MOREL Constance, BERGHEAU Jean Michel
Ecole des Mines de Saint Etienne, France
- ID 118** **Boron nitride processed by CVD: relationship between deposition parameters, microstructure and corrosion resistance**
Paul CARMINATI, Solenne WILLEMIN, Benjamin COSSOU, Patrick WEISBECKER, Sylvain JACQUES, Francis REBILLAT
LCTS, France
- ID 133** **Influence of Al addition on oxidation behavior of Cu-Ni-Cr alloys at 973-1073K in 1.01×10² kPa pure oxygen**
Zhongqiu CAO, Long YU, Ying SHEN, Zhongqiu JIA
Shenyang Normal University, China
- ID 135** **Identification of complex oxidation/corrosion behaviors of boron nitride under high temperature**
Solenne WILLEMIN, Paul CARMINATI, Jérôme ROGER, Francis REBILLAT
LCTS, France
- ID 136** **Oxidation of La-Sr-Mn coated interconnector alloys for steam electrolysis under pressure in pure oxygen and in pure steam**
Maria del Mar JUEZ LORENZO, Vladislav KOLARIK, Veronica KUCHENREUTHER-HUMMEL, Martin PÖTSCHKE, Danilo SCHIMANKE
Fraunhofer ICT, Germany
- ID 138** **High temperature oxidation and adhesion behaviour of thermal oxide scale on micro-alloyed steel**
Komsan NGAMKHAM and Somrerk CHANDRA-AMBHON,
Rajamangala University of Technology Suvarnabhumi Suphanburi, Thailand
- ID 139** **Oxidation comparison of alumina forming and chromia forming commercial alloys at 1100°C and 1200°C**
Bo JONSSON, Alla WESTERLUND
Sandvik Heating Technology AB, Sweden
- ID 143** **About the chemical degradation of a ternary Al₂O₃-ZrO₂-YAG eutectic system by molten CMAS**
Léo PORTEBOIS, Yann DELVOIE, Patrice BERTHOD, Christophe RAPIN, Stéphane MATHIEU, Michel VILASI, Laurent CARROZ, Omar BENAMARA, Kheirreddine LEBBOU, Michaël PODGORSKI
Université de Lorraine - IJL - UMR 7198, France

- ID 144** **Influence of alloy composition and exposure conditions on the selective oxidation behavior of Ni-Al alloys**
Laura GARCIA-FRESNILLO, Juan Manuel ALVARADO-OROZCO, Gerald MEIER
University of Pittsburgh, USA
- ID 168** **Influence of the annealing gas atmosphere on the oxidation state of a trip Mn-Al steel grade**
Andreea PAUNOIU, Jean-Michel MATAIGNE, Marie-Laurence GIORGI, Louis BORDIGNON,
Florence BERTRAND, David ZAPICO ALVAREZ, Jonas STAUDTE
LGPM CentraleSupélec Université Paris-Saclay, France
- ID 170** **Study of grain boundary oxidation of high alloyed carbon steels during slow cooling**
Larissa AGRIZZI RONQUETI, Jérôme FAVERGEON, Jean-Michel MATAIGNE, Marion RISBET,
Michel PICARD
Sorbonne universités, Université de technologie de Compiègne, CNRS, France
- ID 176** **Enhanced oxidation resistance of novel Ti-rich Mo-Si-B-Ti-alloys a by pack-cementation borosilica based coating**
Daniel SCHLIEPHAKE, Camelia GOMBOLA, John H. PEREPEZKO, Martin HEILMAIER
Karlsruhe Institute of Technology, Germany
- ID 188** **Deeply anchored ultra high temperature ceramics protection for carbon/carbon composites**
Caroline LIÉGAUT, Pierre BERTRAND, Laurence MAILLÉ, Francis REBILLAT
Laboratoire des Composites ThermoStructuraux (LCTS), France
- ID 194** **Recent progress in solid oxide fuel cells: new materials development and optimization of the elaboration process**
Fabrice MAUVY
ICMCB-CNRS-Université de Bordeaux, France
- ID 202** **18O₂ tracer experiments to investigate the effect of cerium coatings on a ferritic steel for SOFC applications**
Hannes FALK-WINDISCH, Per MALMBERG, Mohammad SATTARI, Jan-Erik SVENSSON and Jan FROITZHEIM
Chalmers University of Technology, Sweden
- ID 208** **Effect of Alloy microstructure and microalloying with silicon on high temperature oxidation resistance of a novel refractory high-entropy alloy**
F. P. MÜLLER, B. GORR, H.-J. CHRIST, H. CHEN, M. HEILMEIER
University of Siegen, Germany
- ID 210** **Influence of the base element on the oxidation behaviour of intermediate Co/Ni model alloys**
Martin WEISER, Christopher ZENK, Steffen NEUMEIER, Mathias GÖKEN, Sannakaisa VIRTANEN
Friedrich-Alexander Universität Erlangen-Nürnberg (FAU), Germany
- ID 213** **Influence of surface mechanical treatment on high temperature oxidation of titanium and titanium-alloy**
Armand KANJER, Steeve DEJARDIN, Virgil OPTASANU, Luc LAVISSE, Tony MONTESIN, Manuel FRANCOIS, Patrice PEYRE
University of bourgogne, France
- ID 222** **Optimizing the oxidation properties of fecral alloys at low temperatures**
Jesper EJENSTAM, Bo JONSSON, Peter SZAKALOS
KTH Royal Institute of Technology, Sweden
- ID 226** **High temperature oxidation behaviour of cast cobaltbased superalloys versus the nature of their reinforcing carbides**
Mélissa RITOUET, Patrice BERTHOD, Elodie CONRATH
Institut Jean Lamour, France
- ID 243** **Behavior in high temperature oxidation of cast nickel-based and iron-based superalloys reinforced by niobium carbides**
Mélissa RITOUET, Patrice BERTHOD
Institut Jean Lamour, France
- ID 248** **The effect of implanted aluminium and/or yttrium on the scale formation on Fe₂₀Cr₂Al alloy**
Jerzy JEDLIŃSKI, Jean Luc GROSSEAU-POUSSARD, Jarosław DĄBEK, Kazimierz KOWALSKI,
Marek NOCUŃ, Grzegorz SMOŁA, Zbigniew ŻUREK
AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY, Poland

- ID 256** **The effects of Si and Mn on the cyclic oxidation of a Co-Cr-Ni-Fe-Nb alloy**
CRLongfei LIU, Shusen WU, Yunbo DONG
Huazhong University of Science and Technology, China
- ID 273** **Yttrium effect, as alloying element, on the oxidation at 1100°C of a model alumina-forming alloy.**
Christophe ISSARTEL, Henri BUSCAIL, Sébastien CHEVALIER, Jérôme FAVERGEON
LVEEM, le puy en velay, France
- ID 289** **Determination of critical Al content for the formation of Al₂O₃ on Ti₃AlC₂ by an accelerated cyclic oxidation method**
Xichao LI, Lili ZHENG, Yuhai QIAN, Jingjun XU, Meishuan LI
Institute of metal research, Chinese academy of sciences, China
- ID 292** **On the oxidation behaviour of three pseudo-lamellar silicides in air.**
Florian BRUX, Léo PORTEBOIS, Michel FRANCOIS, Stéphane MATHIEU, Michel VILASI
University of Lorraine, Institut Jean Lamour, France
- ID 299** **Effects of Nb doping on long-term oxidation behavior and area-specific resistance of Ti₃SiC₂ for SOFCs interconnect**
Lili ZHENG, Xichao LI, Yuhai QIAN, Jingjun XU, Meishuan LI
Institute of metal research, Chinese Academy of Sciences, China
- ID 301** **Investigation of solid-state diffusion processes involved in metal oxide sulfidation**
Kévin PERRIN, David CHICHE, Javier PEREZ-PELLITERO, Olivier POLITANO, Sébastien CHEVALIER
IFP Energies nouvelles, France

SESSION H

ADVANCED CHARACTERIZATION TECHNIQUES

- ID 134** **Environmental-sem as an innovative route to study the oxidation behaviour of heat-resistant NiCr-rich steels**
Philippe STEYER, Nicolas VACHE, Annie MALCHERE, Lionel ARANDA, Sophie CAZOTTES, Claude DURET-THUALI, François DUPOIRON and Christel AUGUSTIN
INSA de LYON - Laboratoire Mateis, France
- ID 159** **Identification of the zirconia phases by means of raman spectroscopy for specimens prepared by FIB lift-out technique**
Lukasz KURPASKA, Jean-Luc GROSSEAU-POUSSARD, Iwona JOZWIK, Laurent LAHOUCHE, Jerome FAVERGEON, Jacek JAGIELSKI
National Center for Nuclear Research, Poland/ Université de la Rochelle, France
- ID 184** **Observation of native oxide development at 500 to 700°C demonstrated by in-situ XPS of Fe-Cr alloy**
Akbar bin KADERI, Astrid BESMEHN
Forschungszentrum Juelich GmbH, Germany
- ID 206** **In-situ and ex-situ photoelectrochemical studies of thermal scales formed on Zircaloy-2 and Inconel 718 alloys in simulated LWR conditions**
Milan SKOCIC, Jean-Pierre PETIT, Yves WOUTERS, Delphine PERCHE, Damien KACZOROWSKI
University of Grenoble, SIMaP, France
- ID 212** **Characterisation of the porosity in steam grown oxides scales using ion beam milling**
A.T. FRY, D. GORMAN
NPL, UK
- ID 223** **Characterisation of oxygen-enriched Zirconium by scanning microwave microscopy**
V. OPTASANU, P. VITRY, E. BOURILLOT, L. LAVISSE, A. CHATOT, P. BERGER, E. LESNIEWSKA, T. MONTESIN
CB, UMR 6303 CNRS, Université de Bourgogne Franche-Comté, France
- ID 308** **High temperature oxidation of Zirconium Alloy: evolution of Zirconia Monoclinic and quadratic phases**
Serge Yapi BROU, Jean-Luc GROSSEAU-POUSSARD, Gilles BONNET
Laboratoire de Chimie Physique (LCP), Université Félix Houphouët-Boigny d'Abidjan-Cocody, Côte d'Ivoire

