

**Superalloys 2008 Accepted Abstracts**

| <b>Abstract Title</b>   | <b>Speaker's Name</b>      | <b>Speaker's Company</b>                               |
|---|----------------------------|--|
| A 5th Generation SC Superalloy with Balanced High Temperature Properties and Processability   | Akihiro Sato               | Ishikawajima-Harima Heavy Industries Company Ltd       |
| A Coupled Creep-Plasticity Model for Residual Stress Relaxation of a Shot-Peened Nickel-Base Superalloy   | Dennis Buchanan            | University of Dayton Research Institute                |
| A Modeling Tool for the Precipitation Simulations of Superalloys during Heat Treatments   | Kaisheng Wu                | CompuTherm LLC   |
| A New Analytical Method of $\gamma/\gamma'$ Morphology in Single Crystal Ni-Base Superalloys: For New Orientation of Damage and Remaining Life Assessment | Motoki Sakaguchi           | Nagaoka University of Technology                       |
| A New Hyperbolic Tangent Modelling Approach for Creep of the Single Crystal Nickel-Based Superalloy CMSX4   | Hector Basoalto            | QinetiQ Ltd.   |
| A New Ni-base Superalloy for Oil and Gas Applications   | Sarwan Mannan              | Special Metals Corporation                             |
| A Statistical Analysis of Variations in Hot Tear Performance and Microporosity Formation versus Alloy Composition in Investment Cast FSX-414              | Kevin Ronan                | PCC Structural Inc.                                    |
| A Study of Weldability of a Newly Developed Allvac ATI 718 Plus Superalloy  | Mahesh Chaturvedi          | University of Manitoba                                 |
| A TEM Investigation on Precipitation Behavior of AEREX350 Superalloy  | Mojtaba Samiee             | Sharif University of Technology                        |
| Alloy 10: A Third Generation Powder Metal Nickel Based Superalloy   | Derek Rice                 | Honeywell Engines, Systems and Services                |
| An Investigation of the Compatibility of Nickel-based Single Crystal Superalloys with Thermal Barrier Coating Systems                                     | Rudder Wu                  | Imperial College London                                |
| Analysis of Long-Term Cyclic-Oxidation Behavior of Selected High Temperature Alloys   | Vinay Deodeshmukh          | Haynes International                                   |
| Analysis of the Role of Rhenium in Nickel-Based Superalloys Using Atom Probe Tomography   | Alessandro Mottura         | Imperial College London                                |
| Assessment of Lifetime Calculation of Forged IN718 Aerospace Components Based on a Multi-Parametric Microstructural Evaluation                            | Michael Stoschka           | Chair of Mechanical Engineering / University of Leoben |
| Assessment on the Thermo-mechanical Fatigue Properties of 68 Ni-base Single Crystal Superalloys   | Masao SAKAMOTO             | National Institute for Materials Science               |
| Characterization of Fatigue Damage in an Advanced Nickel Base Superalloy  | Deb D Whitis               | GE Aviation  |
| Characterization of Three-Dimensional Dendritic Structures in Nickel-Base Superalloys for Investigation of Defect Formation                               | Jonathan Madison           | University of Michigan                                 |
| Comparison of Low Cycle (Notch) Fatigue Behaviour at Temperature in Single Crystal Turbine Blade Materials  | Philippa Reed              | University of Southampton                              |
| Coupled Modelling of Solidification and Subsequent Heat Treatment of Advanced Single Crystal Alloys   | Henrik Larsson             | KTH  |
| Creep-Fatigue and Thermo-Mechanical Fatigue of Friction-Welded MarM247/IN 718 Dissimilar Joint  | Masakazu Okazaki           | Nagaoka University of Technology                       |
| Creep Behavior of Thick and Thin Walled Structures of a Single-Crystal Nickel-Base Superalloy at High Temperatures – Experimental Method and Results      | Uwe Glatzel                | University Bayreuth                                    |
| Creep Life Evaluation in Polycrystalline Ni-Based Superalloys by Microstructural Quantification   | keiji kubushiro            | IHI Corporation  |
| Deformation Mechanisms in Ni Base Disk Superalloys at Higher Temperatures   | Raymond Unocic             | Ohio State University                                  |
| Design of Solutionizing Heat Treatments for Single Crystal Superalloys  | Subray Hegde               | Carleton University                                    |
| Designing of High-Rhenium Single Crystal Ni-Based Superalloy for Gas Turbine Blades   | Eugeny Kablov              | FSUE "VIAM"  |
| Development of a Fabricable $\gamma'$ -Strengthened Superalloy  | Lee Pike                   | Haynes International Inc                               |
| Development of a New Fatigue and Creep Resistant PM Nickel Base Superalloy for Disks Applications   | Jean-Yves Guedou           | SNECMA   |
| Development of a Simulation Approach to Microstructure Evolution during Solidification and Homogenisation Using the Phase Field Method                    | Nils Warnken               | University of Birmingham                               |
| Development of High Temperature Capability P/M Disk Superalloys   | Eric Huron                 | GE Aircraft Engines                                    |
| Development of Improved Bond Coat for Enhanced Turbine Durability   | Brian Hazel                | General Electric                                       |
| Development of Ni-Co-Base Superalloys for High-Temperature Turbine Disk Applications  | Yuefeng GU                 | National Institute for Materials Science               |
| Development of Si-bearing 4th generation Ni-base Single Crystal Superalloys   | An-Chou Yeh                | National Institute for Materials Science (NIMS)        |
| Effect of a Tantalum Addition on the Morphological and Compositional Evolution of a Model Ni-Al-Cr Superalloy   | Christopher Booth-Morrison | Northwestern University                                |
| Effect of Cooling Rate on Gleeble Hot Ductility of UDIMET Alloy 720 Billet  | Michael Fahrman            | Special Metals Corp                                    |
| Effect of Microstructure on Time Dependent Fatigue Crack Growth Behavior in a P/M Turbine Disk Alloy  | Jack Telesman              | NASA Glenn Research Center                             |
| Effect of Processing and Microstructure on the High Temperature Properties of Advanced P/M Disk Superalloys   | John Schirra               | Pratt and Whitney                                      |
| Effect of Ru on Microstructure Stability and Creep Resistance of a Ni Base Single Crystal Alloy   | Yafang Han                 | Beijing Institute of Aeronautical Materials            |
| Effect of Thermal History on the Properties and Microstructure of a Large HIPPED PM Superalloy Shape  | David Novotnak             | Carpenter Powder Products                              |
| Effects of Low Angle Boundaries on the Mechanical Properties of Single Crystal Superalloy DD6   | Jia Rong Li                | Beijing Institute of Aeronautical Materials            |
| Effects of Oxidation and Hot Corrosion in a Nickel Disc Alloy   | Mark Hardy                 | Rolls-Royce plc  |
| Elevated-Temperature Creep-Fatigue Crack-Growth Behavior of Nickel-Based HAYNES® R-41 Alloy   | Sooyeol Lee                | University of Tennessee                                |
| Elevated Temperature Mechanical Behavior of New Low CTE Superalloys   | Christopher Cowen          | NETL   |
| EQ Coating: A New Concept for SRZ-free Coating Systems  | Kyoko Kawagishi            | National Institute for Materials Science               |
| Evaluation of Ruthenium-Bearing Single Crystal Superalloys - A Design of Experiments  | Robbie Hobbs               | Rolls-Royce plc  |
| Evaluation of the Influence of Grain Structure on the Fatigue Variability of Waspaloy   | Andrew Rosenberger         | US Air Force   |
| Evolution of Size and Morphology of $\gamma'$ Precipitates in UDIMET 720 Li during Continuous Cooling   | Rene Radis                 | Graz University of Technology                          |
| Experimental Investigation and Thermodynamic Modeling of the Ni-Rich Corner of the Ni-Al-Hf System  | Chuan Zhang                | University of Wisconsin-Madison                        |
| Failure Analysis of Weld-Repaired B-1900 Turbine Blade Shrouds  | Erik Mueller               | NAVAIR   |
| Fast Epitaxial High Temperature Brazing of Single Crystalline Nickel Based Superalloys  | Britta Laux                | Technische Universität Braunschweig                    |
| Fatigue Behavior in Monocrystalline Ni-based Superalloys for Blade Applications   | Clarissa Yablinsky         | Ohio State University                                  |
| Fatigue Crack Initiation in Nickel-base Superalloy René 88 DT at 593°C  | J. Miao                    | University of Michigan, Ann Arbor                      |
| Formation of $\gamma'$ -Ni <sub>3</sub> Al via the Peritectoid Reaction: $\gamma + \beta (+ Al_2O_3) = \gamma' (+ Al_2O_3)$                               | Evan Copland               | NASA   |
| Formation of Secondary Reaction Zone and Its Prevention in Diffusion Aluminide Coated Ru-Containing Ni-Base Single Crystal Superalloys                    | Shuwei Ma                  | University of Michigan                                 |
| Gamma Prime Morphology and Creep Properties of Nickel Based Superalloys with Platinum Group Metal Additions   | Jason Van Sluytman         | University of Michigan                                 |
| Gas Turbine Blade Made of FG75-Investment Casting Technology for Complex, Hollow, Fibre-Reinforced NiAl-Components  | Simon Hollad               | Foundry Institute of RWTH Aachen University            |
| Grain-Scale Straining Processes During High Temperature Compression of a PM Disk Alloy  | Wen Tu                     | University of Michigan                                 |
| Grain Boundary Deformation during High Temperature Creep of a PM Nickel-Based Superalloy  | Aurélie SOULA              | ONERA  |
| Grain Selection during Solidification in Spiral Grain Selector  | Dai Huijuan                | University of Leicester                                |
| High Strain Rate Deformation Processes in Ni-Base Single Crystal Superalloys  | Shuwei Ma                  | University of Michigan                                 |
| High Temperature Corrosion Behavior of DS GTD-111 in Oxidizing and Sulfidizing Environments   | Matthew Trexler            | US Army Research Laboratory                            |
| High Temperature Creep of Directionally Solidified Ni Base Superalloys Containing Local Recrystallization   | zhang jian                 | Institute of Metal Research                            |
| High Temperature Microstructural Degradation of Haynes Alloy 230  | Jana Veverkova             | University of Leicester                                |
| High Temperature Micro/Nano-Indentation of Ni-Base Superalloys  | Sammy Tin                  | Illinois Institute of Technology                       |

**Superalloys 2008 Accepted Abstracts**

| <b>Abstract Title</b>   | <b>Speaker's Name</b>    | <b>Speaker's Company</b>   |
|---|--------------------------|--|
| Implication of Shape Change and Variability of Elongation on Unidirectional Strength of Single Crystal  | Dilip Shah               | Pratt and Whitney  |
| Influence of the $\gamma'$ Fraction on the $\gamma/\gamma'$ Topological Inversion during High Temperature Creep of Single Crystal Superalloys                   | Pierre Caron             | ONERA  |
| Influence of the Lattice Parameter Mismatch on the Matrix Deformation Modes in Single Crystal Nickel Superalloys  | Nicolas Ratel            | Institui Laue Langevin   |
| Influence of TLP Bonding on the Creep Deformation of a Nickel-Base Single Crystal Superalloy  | Jide Liu                 | IMR  |
| Integration of Simulations and Experiments for Modeling Superalloy Grain Growth   | Eric Payton              | Ohio State University  |
| Linking the Properties, Processing, Chemistry of Advanced Single Crystal Ni-Base Superalloys  | Sammy Tin                | Illinois Institute of Technology   |
| Long Term Coarsening of Rene 80 Ni-based Superalloy   | Despina Hadjiapostolidou | Imperial College London  |
| Microstress and Misfit Evolution During High Temperature Tension and Creep Deformation of a Single Crystal Superalloy   | Bhaskar Majumdar         | New Mexico Tech  |
| Microstructure Modeling of the Dynamic Recrystallization Kinetic during Turbine Disc Forging of the Nickel Based Superalloy Allvac 718 Plus™                    | Christopher Stotter      | Christian Doppler Laboratory of Materials Modelling and Simulation         |
| Modeling Topologically Close-Packed Phases In Superalloys: Valence-Dependent Bond-Order Potentials Based On Ab-Initio Calculations                              | Thomas Hammerschmidt     | University of Oxford   |
| Modelling High Temperature Mechanical Properties and Microstructure Evolution in Ni-Based Superalloys   | Nigel Saunders           | Thermotech Ltd   |
| NASA and Superalloys: A Customer, a Participant, and a Referee  | Michael Nathal           | NASA Glenn Research Center   |
| New Boron and Silicon Free SX-Diffusion Brazing Alloys  | Robert F Singer          | University Erlangen - Nürnberg   |
| Non-equilibrium Phase Transitions in Ni-base Super Alloys   | Boian Alexandrov         | Ohio State University  |
| Optimizing SC Rene N4 Alloy for DS Aft-Stage Bucket Applications in Industrial Gas Turbines   | Greg Bouse               | General Electric Energy  |
| Oxidation and Coating Evolution in Aluminised Fourth Generation Blade Alloys  | Ian Edmonds              | University of Birmingham   |
| Oxidation of MCrAlY Coatings on Nickel-based Superalloys  | Michael T Pace           | Loughborough University  |
| Phase-Field Modeling of Gamma-Prime Precipitation in Multi-Component Ni-Base Superalloys  | Tomonori Kitashima       | Natinal Institute for Materials Science, Japan                             |
| Polycrystalline Modelling of Udimet 720 Forging   | Julien Thebault          | Laboratoire MSSMat Ecole Centrale Paris                                    |
| Post-Fabrication Vapor Phase Strengthening of a Nickel-Based Sheet Alloy for Thermostructural Panels  | Sara Johnson             | University of Michigan   |
| Precipitation Model Validation in 3rd Generation Aeroturbine Disc Alloys  | Gregory B. Olson         | QuesTek Innovations LLC  |
| Probabilistic Fatigue Life Prediction in the Ni-Base Superalloy IN100   | Sushant Jha              | Universal Technology Corp  |
| Process Development and Microstructure and Mechanical Property Evaluation of a Dual Microstructure Heat Treated Advanced Nickel Disc Alloy                      | Rob Mitchell             | Rolls-Royce plc.   |
| Quantitative Characterization of Features Affecting Crack Path in a Directionally Solidified Superalloy   | Matthew Trexler          | US Army Research Laboratory  |
| Secondary Reaction Zones in Coated 4th Generation Ni-Based Blade Alloys   | Aya Suzuki               | University of Cambridge  |
| Severe Thermomechanical Processing as an Effective Method for Producing Bulk and Sheet Nanostructured Semi-Products from Nickel Alloys 718 and 718plus          | Vener Valitov            | Institute for Metals Superplasticity Problems, Russian Academy of Sciences |
| Solute Redistribution During Planar and Dendritic Growth of Directionally Solidified Ni-Base Superalloy CMSX-10   | Seong Moon SEO           | Korea Institute of Materials Science                                       |
| Structure Control of a New-type High-Cr Superalloy  | Jianxin Dong             | University of Science and Technology Beijing                               |
| Studies on Alloying Element Partitioning in DMS4 Nickel Base Superalloy using Monte Carlo Simulations and 3D Atom Probe   | R Balamuralikrishnan     | Defence Metallurgical Research Laboratory                                  |
| Superalloys for Ultra Supercritical Steam Turbines—Oxidation Behavior   | Gordon Holcomb           | National Energy Technology Laboratory                                      |
| Surface Chemical Contamination on Service-Retrieved Industrial Gas Turbine Engines  | Steven Feng              | Imperial College London  |
| Temperature and Dwell Dependence of Fatigue Crack Propagation in Various Heat Treated Turbine Disc Alloys   | Stewart Everitt          | University of Southampton  |
| Tension/Compression Asymmetry in Yield and Creep Strengths of Ni-Based Superalloys  | Nobuyasu Tsuno           | Tokyo Metropolitan University  |
| The Characterisation and Prediction of LCF Behaviour in Nickel Single Crystal Blade Alloys  | William Evans            | Swansea University   |
| The Development and Performance of Novel Pt+Hf-modified $\gamma'$ -Ni <sub>3</sub> Al+ $\gamma$ -Ni Bond Coatings for Advanced Thermal Barrier Coatings Systems | Brian Gleeson            | University of Pittsburgh   |
| The Effect of Carbide Morphologies on Elevated Temperature Tensile and Fatigue Behavior of a Modified Single Crystal Ni-Base Superalloy                         | Andrew Wasson            | University of Florida  |
| The Effect of Composition, Misfit, and Heat Treatment on the Primary Creep Behavior of Single Crystal Nickel Base Superalloys PWA 1480 and PWA 1484             | Brandon Wilson           | University of Florida  |
| The Effect of Gamma Prime Particle Size on the Deformation Mechanism in an Advanced Polycrystalline Nickel-Base Superalloy                                      | Michael Preuss           | University of Manchester   |
| The Effect of Withdrawal and Melt Overheating Histories on the Microstructures of a Nickel-Based Single Crystal Superalloy                                      | Lin Liu                  | Northwestern Polytechnical University                                      |
| The Effects of Heat Treatment and Microstructure Variations on Disk Superalloy Properties at High Temperatures  | Timothy Gabb             | NASA Glenn Research Center   |
| The Evolution of Grain Boundary Cracking Evaluated Through <I>In-Situ</I> Tensile-Creep Testing of Udimet Alloy 188   | Sara Longanbach          | Michigan State University  |
| The Microstructure and Mechanical Properties of EP741NP Powder Metallurgy Disc Material   | John Radavich            | Micro-Met Laboratories, Inc.   |
| The Performance of Pt-Modified Alumina-Forming Coatings and Model Alloys  | Bruce Pint               | Oak Ridge National Laboratory  |
| The Precipitation and Strengthening Behavior Of Ni <sub>2</sub> (Mo,Cr) in a Newly Developed High Molybdenum Ni-Base Superalloy HASTELLOY C-22HS®               | Xishan Xie               | USTBeijing   |
| Thermal Stability Characterization of Allvac® 718Plus® Alloy  | Wei-Di Cao               | ATI Allvac   |