

The 2nd International Congress on

3DMS

3D Materials Science 2014

L'Impérial Palace • Annecy, France • June 29-July 2

Sponsored by:

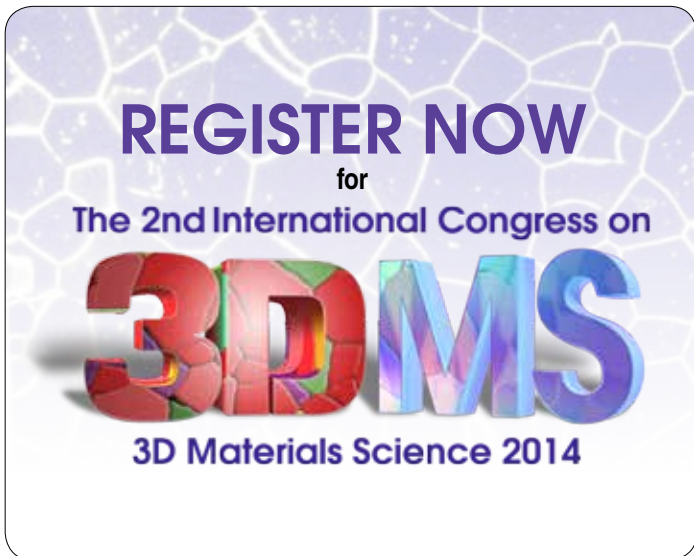


and the TMS Advanced Characterization,
Testing and Simulation Committee



PROGRAM PREVIEW

Register by June 6, 2014, and save!
www.tms.org/3DMS2014



REGISTER BY JUNE 6, 2014, AND SAVE!

The International Congress on 3D Materials Science seeks to provide the premier forum for presentations of current interest and significance to the three-dimensional characterization, visualization, quantitative analysis, modeling, and investigation of structure-property relationships of materials. Additionally, this event will provide an intimate environment for rich discussions and interactions amongst the key researchers in the world - to not only assess the state-of-the-art within the various elements of 3D materials science, but also to roadmap the key areas of future research.

The Congress welcomes scientists, engineers, managers, government program officers, professors, and students involved in 3D materials science from around the world.

Presentations will cover a range of topics representing the most critical and rapidly growing areas of 3D materials science.

ORGANIZERS AND ADVISORS

Organizing Committee:

- Jean-Yves Buffiere, INSA Lyon, France
- Dominique Bernard, Institute of Condensed Matter Chemistry of Bordeaux-CNRS, France
- Tresa Pollock, University of California Santa Barbara, USA
- Anthony Rollett, Carnegie Mellon University, USA
- Michael Uchic, U.S. Air Force Research Lab, USA
- Henning Friis Poulsen, Technical University of Denmark, Denmark

International Advisory Committee:

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- Milo Kral, University of Canterbury, New Zealand
- Simon Ringer, The University of Sydney, Australia
- Dierk Rabbe, Max-Planck-Institute, Germany
- Steve Hall, Lund University, Sweden
- Hamish Fraser, The Ohio State University, USA
- Ulrich Lienert, Deutsches Elektronen-Synchrotron, Germany
- Eric Maire, INSA Lyon, France

REGISTRATION

All congress attendees, including authors, and session chairs, are required to register. To receive the discount registration rate, register at www.tms.org/Meetings/2014/3DMS2014 by June 6, 2014.

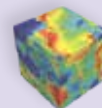
Registration Fees	Through June 6, 2014	Standard
Member	\$695	\$795
Nonmember+	\$825	\$925
Student Member*	\$450	\$450
Student Nonmember*	\$525	\$525

+Includes TMS membership for 2014.

*Copy of student school identification card must accompany registration form.

Registration package includes:

- One copy of the Congress proceedings
- Technical sessions and access to the exhibition
- Welcome reception on Sunday
- Poster reception on Monday
- Dinner event on Tuesday



LOCATION, HOUSING AND TRAVEL

Congress Location - L'Impérial Palace

Near Geneva, L'Impérial Palace-Anncy is a charming hotel in the heart of the French Alps. This French palace hotel is located on the shore of the purest lake in Europe and offers luxury rooms, restaurants, a casino, and a conference center.

For more information, visit www.hotel-imperial-palace.com.

Housing

Visit www.lac-annecy.com/inscriptions/3DMS/ for information on hotel options and rates. All hotels are within walking distance of the L'Impérial Palace. Accommodations must be secured by **May 29, 2014**.

Getting There

L'Impérial Palace is located about 25 miles from the International Airport of Geneva Cointrin. For more travel information, visit www.tms.org/Meetings/2014/3DMS2014/housing.aspx

NETWORKING/SOCIAL EVENTS

Sunday, June 29

Welcome Reception
6:30 p.m. to 7:30 p.m.

Monday, June 30

Poster Reception
3:10 p.m. to 5:00 p.m.

Tuesday, July 1

Dinner Cruise on Lake Annecy
8:00 p.m. to 10:30 p.m.; dancing continues until 12:30 a.m.

TECHNICAL PROGRAM

The 3D Materials Science technical program will include oral and poster presentations on these topics:

- Experimental techniques for 3D data acquisition
- Advances in reconstruction algorithms
- Image processing and digital representation of 2D and 3D microstructural data
- Advances in 3D materials modeling
- Microstructure property relationships in 3D
- 3D interfaces and microstructural evolution
- Future directions and challenges for 3D materials science

Technical Sessions

All oral presentations will be held in the Salle de l'Europe and Salle Verdi. An all-congress keynote presentation will take place on Monday and Tuesday morning in Salle de l'Europe.



EXHIBIT AND SPONSORSHIP OPPORTUNITIES

Reservations are being accepted for a networking-focused exhibit relevant to session topics.

Corporate sponsorship offers high visibility at the congress reception, refreshment breaks, and attendee social activities, as well as on registration amenities like reusable canvas bags, badges, and lanyards.

For more information on exhibiting or purchasing a corporate sponsorship, contact Caron Gavrish at cgavrish@tms.org



MONDAY, JUNE 30, 2014

Keynote

Room: Salle de l'Europe

8:00 AM	Keynote Correlative 3D Imaging Across Time and Length Scales: <i>Philip Withers</i> ¹ ; Timothy Burnett ¹ ; ¹ University of Manchester
8:30 AM	Question and Answer Period

Session 1: Diffraction and Related Techniques I

Room: Salle de l'Europe

8:45 AM	Invited 3D Mapping of Polycrystalline Materials by X-ray Diffraction Imaging Techniques: <i>Wolfgang Ludwig</i> ¹ ; Andrew King ² ; Peter Reischig ² ; Laura Nervo ² ; Nicola Vigano ² ; Nicolas Guenin-chault ³ ; Henry Proudhon ³ ; Yoann Guilhem ² ; ¹ Université de Lyon; ² ESRF; ³ Mines Paristech
9:15 AM	Status Report on HEDM at the APS: Measurements and Analysis in 3D: <i>Robert Suter</i> ¹ ; ¹ Carnegie Mellon University
9:35 AM	Identification of the Onset of the Common Tensile Twinning Mode in Titanium Alloys using Neutron Diffraction and X-ray Diffraction Contrast Tomography Techniques: <i>Laura Nervo</i> ¹ ; Andrew King ² ; Arnas Fitzner ³ ; Joao Quinta da Fonseca ³ ; Michael Preuss ³ ; Wolfgang Ludwig ⁴ ; ¹ ESRF & University of Manchester; ² Synchrotron SOLEIL; ³ University of Manchester; ⁴ INSA LYON
9:55 AM	Break (35 minutes)

Session 2: Acquisition and Handling of 3D Data I

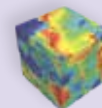
Room: Salle Verdi

8:45 AM	Invited Equilibrium Gap Regularized Radio-Based Digital Volume Correlation: <i>Stephane Roux</i> ¹ ; T. Taillandier-Thomas ¹ ; A. Bouterf ¹ ; H. Leclerc ¹ ; F. Hild ¹ ; ¹ CNRS/ENS-Cachan
9:15 AM	Combined Estimation of Affine Movement and Reconstruction in Tomography: <i>Vincent Nieuwenhove</i> ¹ ; Geert Van Eyndhoven ¹ ; Jan Sijbers ¹ ; ¹ University of Antwerp
9:35 AM	Analysis of Crack Propagation in Freeze Cast Ceramics Based Composite Materials Characterised by Micro X-ray Computed Tomography: <i>Steven Van Boxel</i> ¹ ; Eleonora D'Elia ² ; Claudio Ferraro ² ; Salvatore Grasso ³ ; Mike Reece ³ ; Peter Lee ¹ ; Philip Withers ¹ ; Eduardo Saiz ² ; ¹ University of Manchester; ² Imperial College London; ³ Queen Mary University of London
9:55 AM	Break (35 minutes)

Session 3: Microstructure/Property Relationship in 3D: Characterization and Simulation I

Room: Salle de l'Europe

10:30 AM	Challenges for Focused Ion Beam Analysis of Three Dimensional Microstructures in WC-Co Hardmetals: <i>Ken Mingard</i> ¹ ; Helen Jones ¹ ; Bartlomiej Winiarski ¹ ; Mark Gee ¹ ; Ali Gholinia ² ; ¹ National Physical Laboratory; ² University of Manchester
10:50 AM	3D Structure of Abrasion Damage to WC/Co Hardmetals: <i>Mark Gee</i> ¹ ; Helen Jones ¹ ; Andrew Gant ¹ ; John Nunn ¹ ; Ken Mingard ¹ ; ¹ National Physical Laboratory
11:10 AM	Characterization by 3D SEM/FIB Tomography of Cracks and Damage in Hardmetals: <i>Emilio Jimenez Pique</i> ¹ ; Jose Maria Tarrago ¹ ; Miquel Turon-Viñas ¹ ; Gemma Fargas ¹ ; Ihsan Al-Dawery ² ; Ludwig Schneider ² ; Luis Llanes ¹ ; ¹ Universitat Politècnica de Catalunya; ² Sandvik Hard Materials
11:30 AM	Geometric and Mechanical Modeling of Fiber-Reinforced Composites: Heiko Andrä ¹ ; Martin Gurka ² ; Matthias Kabel ¹ ; Sebastian Nissle ² ; Katja Schladitz ¹ ; <i>Oliver Wirjadi</i> ¹ ; ¹ Fraunhofer ITWM; ² Institut für Verbundwerkstoffe IVW
11:50 AM	3D Image Segmentation and Cylinder Recognition for Composite Materials: <i>Amaury Walbron</i> ¹ ; Denis Rochais ¹ ; Sylvain Chupin ¹ ; Maitine Bergounioux ² ; Romain Abraham ² ; ¹ CEA Le Ripault; ² MAPMO/CNRS
12:10 PM	Lunch (On Your Own)


Session 4: Microstructure/Property Relationship in 3D: Deformation and Damage I

Room: Salle Verdi

10:30 AM	Investigating the Plastic Zone at the Tip of a Crack: A 3D Diffraction and Imaging Study using Synchrotron X-rays: Peter Hruby ¹ ; Sudhanshu Singh ¹ ; Jason Williams ¹ ; Xianghui Xiao ² ; Ruqing Xu ² ; Peter Kenesei ² ; Francesco Decarlo ² ; John Almer ² ; <i>Nikhilesh Chawla</i> ¹ ; ¹ Arizona State University; ² Advanced Photon Source, Argonne National Laboratory
10:50 AM	3D Quantification of Trans- and Inter-lamellar Fatigue Crack in Ti Alloy: <i>Laurent Babout</i> ¹ ; Lukasz Jopek ¹ ; Marcin Janaszewski ¹ ; Michael Preuss ² ; ¹ Lodz University of Technology; ² University of Manchester
11:10 AM	Damage in Amorphous Crystalline Composite: <i>Antoine Ferre</i> ¹ ; Eric Maire ¹ ; Sylvain Dancette ¹ ; ¹ INSA Lyon
11:30 AM	3D Study of Second Phase Particle Break-up in AISI₁₂ Cast Alloy: <i>Tireira Aly</i> ¹ ; Requena Guillermo ² ; Borbely Andras ¹ ; Helmut Klöcker ¹ ; ¹ ENS MINES SAINT ETIENNE; ² Vienna University of Technology
11:50 AM	3D Features of Hydrogen Accumulation Induced by Deformation: <i>Lei Zhang</i> ¹ ; Chunli Dai ¹ ; Shaogang Wang ¹ ; Jun Tan ¹ ; ¹ Institute of Metal Research
12:10 PM	Lunch (On Your Own)

Session 5: Acquisition and Handling of 3D Data II

Room: Salle de l'Europe

2:00 PM	Invited Creating a Common Environment for Storing, Sharing and Working With Digital Microstructure Data: Thoughts and Lessons Learned: <i>Michael Groeber</i> ¹ ; Michael Uchic ¹ ; Michael Jackson ² ; ¹ AFRL; ² BlueQuartz Software
2:30 PM	A Multiresolution Approach to the Discrete Algebraic Reconstruction Technique (DART): <i>Andrei Dabrovolski</i> ¹ ; Joost Batenburg ² ; Jan Sijbers ¹ ; ¹ University of Antwerp; ² Centrum Wiskunde & Informatica (CWI)
2:50 PM	A Beamline Refurbishment Dedicated to Multi-scale Microtomography: Multi-purpose Setups Accessible for Academic and Industrial Studies: <i>Elodie Boller</i> ¹ ; Alexander Rack ¹ ; Michel Rénier ¹ ; Anne Bonnin ¹ ; Vincent Fernandez ¹ ; Paul Tafforeau ¹ ; ¹ ESRF

Session 6: New Experimental Techniques I

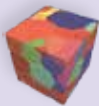
Room: Salle Verdi

2:00 PM	Invited Comparative Analysis of Strontium Titanate Datasets by 3D Femtosecond Laser and Synchrotron Diffraction Contrast Tomography: <i>McLean Echlin</i> ¹ ; Michael Titus ¹ ; Will Lenthe ¹ ; Andreas Trenkle ² ; Melanie Syha ² ; Peter Gumbsch ² ; Tresa Pollock ¹ ; ¹ University of California Santa Barbara; ² KIT
2:30 PM	Dynamic High-temperature Monitoring of Microwave Energy Absorption and Heating of Materials with Ultrafast In-situ Synchrotron X-ray Tomographic Microscopy and Powder Diffraction Techniques: <i>Sebastien Vaucher</i> ¹ ; Rajmund Mokso ² ; Kotaro Ishizaki ¹ ; Manuela Stir ³ ; Radu Nicula ¹ ; ¹ Empa - Swiss Federal Laboratories for Materials Science and Technology; ² Swiss Light Source, Paul Scherrer Institute; ³ University of Berne
2:50 PM	Tracking of Individual Grains of Geomaterials During Phase Transitions Using In situ 3D-X-ray Diffraction up to 25 GPa and 1000 K: <i>Angelika Rosa</i> ¹ ; Sebastien Merkel ¹ ; Sujoy Ghosh ² ; Nadege Hilairret ¹ ; Jean-Phillipe Perrillat ³ ; Mohamed Mezouar ⁴ ; Gavin Vaughan ⁴ ; ¹ Université Lille; ² ETH Zürich; ³ Université Claude Bernard Lyon; ⁴ ESRF

Poster Session (3:10 – 5:00 p.m.)

Room: Foyer

3-D Microstructural and Micromechanical Characterization of Nanoporous Gold/Epoxy Composites: <i>Kaixiong Hu</i> ¹ ; Markus Ziehmer ¹ ; Ke Wang ² ; Daniel Kupka ¹ ; Erica Lilleodden ¹ ; ¹ Institute of Materials Research, Materials Mechanics, Helmholtz-Zentrum Geesthacht; ² Institute of Materials Physics and Technology, Technische Universität Hamburg-Harburg	
3D Analysis of a Fatigue Crack in Cast Iron using Digital Volume Correlation of X-ray Tomographic Images: <i>Joel Lachambre</i> ¹ ; Jean-Yves Buffiere ¹ ; Julien Rethore ¹ ; ¹ INSA LYON / Lab. MATEIS	
3D Characterization of Cast Ni Superalloys using an Automated Multimodal Serial Sectioning System: <i>Michael Uchic</i> ¹ ; Michael Groeber ¹ ; J. Scott ² ; Jonathan Miller ¹ ; ¹ U.S. Air Force Research Laboratory; ² UES, Inc.	



3D Characterization of Rapid Solidification Microstructures in Al-4.5wt%Cu Droplets: *Abdoul-Aziz Bogno*¹; Guillaume Reinhart²; Xing Xiaoxiong¹; Hani Henein¹; Henri Nguyen-Thi²; Elodie Boller³; Denis Sheptyakhov⁴; ¹University of Alberta; ²Aix- Marseille University & 3 CNRS, IM2NP UMR 7334; ³European Synchrotron Radiation Facility; ⁴Laboratory for Neutron Scattering, Paul Scherrer Institut

3D Crack in 316L Stainless Steel Revealed by X-ray Tomography: *Shao-Gang Wang*¹; Liang Xiong¹; Su-Cheng Wang¹; Lei Zhang¹; ¹Institute of Metal Research, Chinese Academy of Sciences

3D EBSD Analysis with a Dual Beam Focused Ion Beam: *Ali Gholinia*¹; ¹University of Manchester

3D Evaluation of Inhomogeneous Plastic Deformation of Grains in Aluminum Alloy: *Masakazu Kobayashi*¹; Yuki Kawamura¹; ¹Toyohashi University of Technology

3D MC Simulation of Grain Growth Kinetics and the Zener Limit in Two-phase Polycrystals: *Phaneesh Kalale*¹; Gautam²; Anirudh Bhat³; K T Kashyap³; ¹M. S Ramaiah Institute of Technology; ²Consultant; ³PESIT

3D Microstructure-based Modeling for Hole-expansion Formability of Dual-phase and Ferrite-bainite Steels: *Jinjin Ha*¹; Jinwoo Lee¹; Ji Hoon Kim²; Frédéric Barlat¹; Myoung-Gyu Lee¹; ¹Graduate Institute of Ferrous Technology (GIFT), Pohang University of Science and Technology (POSTECH); ²Korea Institute of Materials Science

3D Microstructure of Sub Microns Reinforced Metal Matrix Composites: Post Mortem and In situ Tomography Analysis: *Rémi Daudin*¹; Sofiane Terzi¹; Pierre Lhuissier¹; Michelle Alvarez¹; Luc Salvo¹; Elodie Boller¹; ¹SIMAP

3D Modeling and Analysis of the Microstructure and Strength of Paper Products: *Majid Targhagh*¹; Yash Sharma²; Pouyan Jahangiri²; Andre Phillion¹; D. Mark Martinez³; ¹Okanagan School of Engineering, The University of British Columbia, Kelowna, Canada.; ²Department of Mechanical Engineering, The University of British Columbia, Vancouver, Canada.; ³Department of Chemical and Biological Engineering, The University of British Columbia, Vancouver, Canada.

3D Multiscale Characterization of Silica Xerogels Composites: *Anouk Perret*¹; Geneviève Foray²; Lucian Roiban²; Karine Masenelli-Varlot²; Eric Maire²; Jérôme Adrien²; Bernard Yrieix³; ¹MATEIS/EDF; ²MATEIS INSA de Lyon; ³EDF R&D

3D SEM-Based Investigation of Fracture Toughness Properties of Modified 9Cr-1Mo Steel: Xiang Chen¹; *Randy Nanstad*¹; Mikhail Sokolov¹; ¹Oak Ridge National Laboratory

A New Design for In-situ Tomographic Tensile Stage: *Nicolas Gueninchaull*¹; Arthur Desprès²; Yannick Pannier³; Nicolas Lenoir⁴; Henry Proudhon¹; ¹Mines Paristech; ²INSA Lyon; ³ENSMA; ⁴ENPC

A Novel Approach to Multiscale Homogenisation: Philippe Young¹; David Raymond²; *David Harman*²; ¹University of Exeter; ²Simpleware Ltd.

A Novel Superelastic Porous Material Made of a Single Entangled NiTi Wire: *Benjamin Gadot*¹; Laurent Orgeas²; David Rodney³; Sabine Rolland Duroscoat²; Didier Bouvard¹; ¹SIMAP-GPM2; ²CNRS/3SR Lab; ³Université Claude Bernard Lyon 1 Institut Lumière Matière

Adaptive Ring Artefact Suppression Method for Tomography Applications: *Diwaker Jha*¹; Henning Sørensen¹; Sören Dobborschütz¹; Susan Stipp¹; ¹Copenhagen University

3D Stochastic Modeling of Microstructure Evolution during the Solidification of Dendritic Alloys: *Laurentiu Nastac*¹; Daojie Zhang¹; ¹The University of Alabama

Analyzing Microstructure and Damage in Construction Materials with 3D Micro CT: *Dietmar Meinel*¹; Andreas Staude¹; Karsten Ehrig¹; ¹BAM

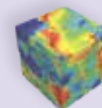
Capability of Submicron X-ray Diffraction Beamline at Taiwan Photon Source for 2D and 3D Materials Research: *Ching-Shun Ku*¹; Chi-Yi Huang¹; Ling Lee²; Yen-Ting Liu³; Shang-Jui Chiu¹; Cheng-Chi Chen¹; Hsin-Yi Lee¹; ¹National Synchrotron Radiation Research Center; ²Tunghai University; ³National Chiao Tung University

Capturing Microstructural Data for Model Validation: *Veronica Livescu*¹; Curt Bronkhorst¹; John Bingert¹; ¹Los Alamos National Laboratory

Characterising 3D Force Transfer in Granular Material: *Stephen Hall*¹; Jonathan Wright²; ¹Lund University; ²ESRF

Characterization of Gamma Prime Precipitate Morphology: McLean Echlin¹; *William Lenthe*¹; Tresa Pollock¹; Robert Rhein¹; ¹University of California Santa Barbara

Characterization of Mg-Ca Alloys using X-ray Tomography: *Paul Salero*¹; ¹Laboratoire MATEIS



Comparison of Plastic Deformation in 3D between Experiments and Simulation: *Anthony Rollett*¹; Ricardo Lebensohn²; Reeju Pokharel²; Jonathan Lind¹; Samikshya Subedi¹; Frankie Li³; Ulrich Lienert⁴; Robert Suter¹; ¹Carnegie Mellon University; ²Los Alamos National Laboratory; ³Lawrence Livermore National Laboratory; ⁴DESY

Determination of Quantified Relationships Between 2D and 3D Microstructural Metrics in α - β Titanium Alloys: *John Sosa*¹; Daniel Huber¹; Brian Welk¹; Peter Collins²; Hamish Fraser¹; ¹The Ohio State University; ²University of North Texas

Development and Application of Tools and Techniques for Three-dimensional Materials Characterization Using MIPAR™, A Novel Analytical 3D Software Package: *John Sosa*¹; Daniel Huber¹; Hamish Fraser¹; ¹The Ohio State University

Efficient Reconstruction of Subsurface Grain Structure from Selective Differential Aperture X-ray Microscopy: *Philip Eisenlohr*¹; Pratheek Shanthraj²; Wenjun Liu³; Bret Dunlap¹; Chen Zhang¹; Thomas Bieler¹; ¹Michigan State University; ²Max-Planck-Institut für Eisenforschung; ³Argonne National Laboratory

Evolution of Different Generations of Gamma Prime Precipitates in Nickel Base Superalloys – A Three-dimensional Perspective: Tanaporn Rojhirunsakool¹; Subhashish Meher¹; Gopal Viswanathan²; Antariksh Singh¹; Junyeon Hwang¹; Rajagopalan Srinivasan²; Soumya Nag¹; Jaimie Tiley³; Hamish Fraser²; *Rajarshi Banerjee*¹; ¹University of North Texas; ²The Ohio State University; ³U.S. Air Force Research Laboratory

Finite Element Simulation and Experimental Analysis on Fatigue Behavior of SiC_n/Al Co-Continuous Composites: *Yu Liang*¹; Kun-Peng Yang¹; Yan-li Jiang¹; Nan-nao Ge²; Ming Fang³; ¹Key Laboratory of New Processing Technology for Nonferrous Metals & Materials, Ministry of Education, Guilin University of Technology; ²Zhejiang Tianle New Material Technologic Co. Ltd; ³Zhejiang Tianle New Material Technologic Co. Ltd.

Fitting Subdivision Surfaces on Three Dimensional EBSD Maps: *Edgar de Araujo*¹; Hadi Pirgazi¹; Leo Kestens²; ¹Ghent University; ²Ghent University and Delft University of Technology

Geometric Modeling of Closed-Cell Rigid Polymer Foam Structures for Prediction of Mechanical Properties: *Irene Vecchio*¹; Ralf Schlimper²; Katja Schladitz¹; Claudia Redenbach³; ¹Fraunhofer ITWM; ²Fraunhofer IWM; ³Technische Universität Kaiserslautern

Grain Mapping at the High Energy Beamline HEMS: *Torben Fischer*¹; Lars Lottermoser¹; Norbert Schell¹; Martin Müller¹; Andreas Schreyer¹; ¹Helmholtz-Zentrum Geesthacht

High-energy Microtomography using Synchrotron Radiation at DESY for Materials Science Application: *Felix Beckmann*¹; ¹Helmholtz-Zentrum Geesthacht

High-resolution, In situ, Modular, Lab-scale X-ray Computed Tomography (XCT) System for 4D Materials Science: Nikhilesh Chawla¹; *James Mertens*; Jason Williams¹; ¹Arizona State University

High Resolution MicroCT Imaging and 3D Image Analysis of Paper Products: *Yash Sharma*¹; Andre Phillion²; D. Mark Martinez³; ¹Department of Mechanical Engineering, The University of British Columbia, Vancouver, Canada.; ²Okanagan School of Engineering, The University of British Columbia, Kelowna, Canada; ³Department of Chemical and Biological Engineering, The University of British Columbia, Vancouver, Canada

Identification and Characterization of Subgrain Features in 3D EBSD Data: *Andrew Loeb*¹; Brian Soe¹; Cullen McMahon¹; Michael Ferry²; Lori Bassman¹; ¹Harvey Mudd College; ²University of New South Wales

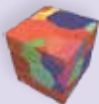
Improvement of Mechanical Properties with Reversed Austenite and Copper-rich Phases in an Alloyed Steel with Intercritical Treatment: *Qingdong Liu*¹; Wenqing Liu²; Jianfeng Gu¹; ¹Shanghai Jiaotong University; ²Shanghai University

In-situ 3D Imaging of Structure and Failure of Materials using Synchrotron Radiation Tomography: *K M Mostafijur Rahman*¹; Jerzy Szpunar¹; George Belev²; Mohammad Reza Toroghinejad³; ¹Department of Mechanical Engineering, University of Saskatchewan; ²Canadian Light Source; ³Department of Materials Engineering, Isfahan University of Technology

Influence of Casting Defects on the Fatigue Behaviour of an AISi7Mg0.6-T6 Aerospace Alloy: Itziar Serrano-Munoz¹; Jean-Yves Buffière¹; *Catherine Verdu*¹; ¹Laboratoire Mateis

Influence of Particles and Microstructure on Short Fatigue Crack Initiation and Propagation in AA2050-T8 and AA7050-T7451: *Erembert Nizery*¹; Jean-Yves Buffiere¹; H. Proudhon²; P. Cloetens³; A. Daniélou⁴; S. Forest²; ¹INSA Lyon; ²Mines ParisTech; ³ESRF; ⁴Constellium CRV

Influence of the Lost Foam Casting Microstructure on Low Cycle Fatigue Damage of A319 Aluminum Alloy: Nora Dahdah¹; Nathalie Limodin¹; Jean-Francois Witz¹; Eric Charkaluk¹; *Long Wang*¹; Jean-Yves Buffiere²; ¹Laboratoire de Mécanique de Lille (LML), UMR CNRS; ²Laboratoire Matériaux, Ingénierie et Sciences (MATEIS), UMR CNRS



Investigation of Pre-existing Pores in Creep Loaded 9Cr Steel: *Surya Deo Yadav*¹; Cecilia Poletti¹; Bernhard Sonderegger²; Bernhard Sartory³; Joerdis Rosc³; Roland Brunner³; Christof Sommitsch¹; ¹Graz University of Technology; ²University of Cape Town; ³Materials Center Leoben Forschung GmbH (MCL)

Large Scale 3D Multi-phase-field Simulation of Microstructure Evolution using TSUBAME2.5 GPU-supercomputer: *Akinori Yamanaka*¹; Masashi Okamoto¹; Takashi Shimokawabe²; Takayuki Aoki²; ¹Tokyo University of Agriculture and Technology; ²Tokyo Institute of Technology

Large Volume Serial Sectioning Tomography by Broad Ion Beam Polishing and Automated EBSD-SEM Data Artefact Correction: *Bartłomiej Winiarski*¹; Ali Gholinia¹; Ken Mingard²; Helen Jones²; Mark Gee²; George Thompson¹; Philip Withers¹; ¹University of Manchester; ²National Physical Laboratory

Measuring Permeability and Heat Transfer in 3D Metallic Weaves and Comparing with Simulations based on X-ray Tomographic Imaging: *Longyu Zhao*¹; Seunghyun Ha¹; Stephen Ryan¹; Dylan Kirby¹; Keith Sharp²; Andrew Geltmacher³; Richard Fonda³; Alex Kinsey¹; Yong Zhang¹; Dinc Erdeniz⁴; David Dunand⁴; Kevin Hemker¹; James Guest¹; Timothy Weis¹; ¹Johns Hopkins University; ²SAERTEX USA, LLC.; ³Naval Research Laboratory; ⁴Northwestern University

Methods for Reconstructing and Quantifying 3D Woven Structures: *Amanda Levinson*¹; David Rowenhorst²; Richard Fonda²; ¹National Research Council Fellow, U.S. Naval Research Laboratory; ²U.S. Naval Research Laboratory

Microstructure and Mechanical Optimization in Sea Urchin Shells: *Dirk Mütter*¹; Henning Sørensen¹; Jette Oddershede²; Susan Stipp¹; ¹University of Copenhagen; ²Danish Technical University

Modeling in 3D and Stress Analysis of a Crankshaft using Finite Element Method: *Walid Roundi*¹; ¹ENSIAS de RABAT

Morphological and Performance Measures of Poly(urethane) Foams using X-ray CT and Mechanical Testing: *Brian Patterson*¹; Kevin Henderson¹; Manuel Chavez¹; Stephanie Tornga¹; Nikolaus Cordes¹; Robert Gilbertson¹; Zachary Smith¹; ¹Los Alamos National Laboratory

Multi-Dimensional 3-D Characterization: Bridging the Gap Between Experiments and Modeling: *Neal Magdefrau*¹; Julie Wittenzellner¹; Matthew Lynch¹; Rajesh Kumar¹; Wayne Schmidt¹; Jodi Vecchiarelli¹; ¹United Technologies Research Center

Multiscale Analysis of Cellular Materials by X-ray Tomography and Finite Element Modelling: *Clemence Petit*¹; Eric Maire¹; Sylvain Meille¹; Jérôme Adrien¹; ¹MATEIS Laboratory INSA de Lyon - Université de Lyon

Non-destructive Study of Microstructure Evolution in Polycrystalline Cu using Synchrotron Radiation and Full-field Simulation: *Reeju Pokharell*¹; Jonathan Lind²; Shiu Fai Li²; Peter Kenesei³; Ricardo Lebensohn¹; Robert Suter⁴; Anthony Rollett⁴; ¹Los Alamos National Laboratory; ²Lawrence Livermore National Laboratory; ³Argonne National Laboratory; ⁴Carnegie Mellon University

Nonstandard Materials Electrical Discharge Machining (by Example of Electrolytic Chrome): *Anna Okunkova*¹; Pavel Peretyagin¹; Yuri Vladimirov¹; Marina Volosova¹; Ramon Torrecillas²; ¹Moscow State University of Technology "STANKIN"; ²Centro de Investigación en Nanomateriales y Nanotecnología CSIC

Procedure for 3D Microstructure Reconstruction of a Heterogeneous Metal Matrix Composite Material: *Donna Guillen*¹; Heng Ban²; Zilong Hua²; ¹Idaho National Laboratory; ²Utah State University

Quantifying and Representing Non-Primary Phases in Metallic Microstructure: *Joseph Tucker*¹; Adam Pilchak²; Michael Groeber²; ¹UES, Inc.; ²U.S. Air Force Research Lab

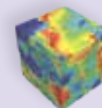
Reconstruction of Grain Boundary Surfaces from Large-Scale Three-Dimensional Data by Manual Serial Sectioning Technique: *Hadi Pirgazi*¹; Edgar Gomes¹; Leo Kestens²; ¹Ghent University; ²Ghent University and Delft University of Technology

Reconstruction of the 3D Representative Volume Element from the Generalized 2-point Correlation Function: *Abhijit Brahme*¹; Yauheni Staraselski¹; Raja Mishra²; Kaan Inal¹; ¹University of Waterloo; ²General Motors Research and Development Center

Simulation of Photon Interactions with 3D Photovoltaic Copper Zinc Tin Sulfide (CZTS) Thin Film Solar Cells: Ricardo Saenz Landazabal¹; Christian Botkin¹; Andre Giron¹; Viral Patel¹; Walker Ravina¹; Kavin Manickaraj¹; *Jud Ready*¹; ¹Georgia Tech Research Institute

Single-distance Phase Retrieval for DP Structures in Steels: *Hiroyuki Toda*¹; Fukuto Tomizato¹; Ryo Harasaki¹; Kentaro Uesugi²; Akihisa Takeuchi²; Yoshio Suzuki²; Masakazu Kobayashi¹; ¹Toyohashi University of Technology; ²Japan Synchrotron Radiation Research Institute

Site Specific 3D Pathway Analysis of Functional Energy Materials: *Peter Jørgensen*¹; Tobias Stegk¹; Karin Hansen¹; ¹DTU



Temporal Evolution of the Gamma(fcc)/Gamma-prime(L12) Interfacial Widths in Binary Ni-Al Alloys: An Atom-probe Tomographic Study: Elizaveta Plotnikov¹; Zugang Mao¹; Ronald Noebe¹; *David Seidman*¹; ¹Northwestern University

The Intervariant Crystallographic Planes Distribution in a Lath Martensite: *Hossein Beladi*¹; Gregory Rohrer²; Anthony Rollett²; Vahid Tari³; Peter Hodgson¹; ¹Deakin University; ²Carnegie Mellon University; ³Mississippi State University

The Materials Science Beamline ID11 at the ESRF: Gavin Vaughan¹; *Jonathan Wright*¹; Wolfgang Ludwig¹; Henning Poulsen²; Andrea Bernasconi¹; Nicholas Harker¹; Henri Gleyzolle¹; ¹ESRF; ²Technical University of Denmark

The Quantification of Rafting in Ni-based Superalloys Using Moment Invariants: *Lily Nguyen*¹; Rongpei Shi²; Dong Wang²; Marc De Graef¹; ¹Carnegie Mellon University; ²The Ohio State University

Three-dimensional Deformation Morphology under Nanoindentation: *Sanjit Bhowmick*¹; Syed Asif¹; ¹Hysitron

Three Dimensional Morphology and Spatial Distribution of Non-metallic Inclusions in Steel Slabs: *Seiki Takebayashi*¹; Kenichi Yamamoto¹; Masafumi Miyazaki¹; Mayuko Ishino¹; Yoshiyuki Ueshima¹; ¹Nippon Steel & Sumitomo Metal Corporation

Tomography and Imaging at the Psiché Beamline, Soleil: *Andrew King*¹; Nicolas Guignot¹; Pierrick Zerbino¹; Aurélien Delmotte¹; Jean-Paul Itié¹; ¹Synchrotron SOLEIL

Using Moment Invariants to Quantify a Strain Glass Transition: *Lily Nguyen*¹; Dong Wang²; Yunzhi Wang²; Marc De Graef¹; ¹Carnegie Mellon University; ²The Ohio State University

X-ray Computed Tomography Characterisation of Titanium Powders for Additive Manufacturing: *Fabien Leonard*¹; Samuel Tammas-Williams¹; Fatos Derguti²; Iain Todd²; Philip Withers¹; ¹The University of Manchester; ²University of Sheffield

X-ray Microscopy for In Situ Characterization of 3D Microstructure Evolution in the Laboratory: *Leah Lavery*¹; Arno Merkle¹; Jeff Gelb¹; ¹Carl Zeiss X-ray Microscopy, Inc.

X-ray Microtomography of the Heat Damage in Carbon Fibre Reinforced Composites: *Peifeng Li*¹; ¹Nanyang Technological University

X-ray Tomography Study of Gallo-Roman Archeologic Artefacts: *Christophe Le Bourlot*¹; Jérôme Adrien¹; Eric Maire¹; ¹MATEIS - INSA de Lyon

X-ray Tomographic Characterisation of Damage in a Cast Al Alloy During Thermomechanical Fatigue Tests: *Sébastien Dézécot*¹; Vincent Maurel²; Alain Köster²; Fabien Szymka³; Jean-Yves Buffière¹; ¹INSA de Lyon; ²Centre des Matériaux; ³PSA Peugeot Citroën

“Dissector-select” Technique for Efficient Grain Volume Distribution Determination by Serial Sectioning: *Burton Patterson*¹; Tyler Kaub¹; Robert DeHoff¹; Veena Tikare²; George Strickland, II¹; ¹University of Florida; ²Sandia National Laboratories

Session 7: Microstructure/Property Relationship in 3D: Characterization and Simulation II

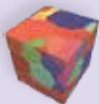
Room: Salle de l'Europe

5:00 PM	Invited Quantifying Polycrystalline Grain Boundary Networks for 3D Property Simulation: <i>Alexis Lewis</i> ¹ ; Amanda Levinson ² ; David Rowenhorst ¹ ; ¹ U.S. Naval Research Laboratory; ² National Research Council
5:30 PM	Acquisition of 3D Data for Prediction of the Cyclic Properties of Ni-Base Alloys: Will Lenthe ¹ ; Jean-Charles Stinville ¹ ; McLean Echlin ¹ ; <i>Tresa Pollock</i> ¹ ; ¹ University of California Santa Barbara
5:50 PM	Hierarchical Investigation of 3D Microstructure at Three Different Length Scales – Towards Quantitative Understanding of Microstructure Formation for the Example of Lightweight Al-Si Alloys with Complex Morphology: <i>Frank Mücklich</i> ¹ ; Jenifer Barrirero ¹ ; Michael Engstler ¹ ; ¹ Saarland University
6:10 PM	Micromechanical Characterization of Dielectric Inclusions Used to Produce Anisotropic Ferroelectric Composites: <i>Julien Lesseur</i> ¹ ; Jean-François Camenen ² ; Jérôme Majimel ¹ ; Catherine Elissalde ¹ ; Ivan Iordanoff ² ; Claude Estournès ³ ; Dominique Bernard ¹ ; ¹ ICMCB CNRS, UPR9048; ² I2M CNRS, UMR5295; ³ CIRIMAT CNRS, PNF2 MHT

Session 8: Analysis at the Nanoscale I

Room: Salle Verdi

5:00 PM	Invited 3D Analysis of Crack-tip Dislocations Using High Voltage Electron Microscopy: <i>Kenji Higashida</i> ¹ ; Masaki Tanaka ¹ ; ¹ Kyushu University
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5:30 PM	Three-dimensional Tomographic Reconstruction of Precipitates in High Entropy Alloys (HEAs) to Determine the Quantitative Influence of Varied Data Acquisition Parameters: Daniel Huber ¹ ; Brian Welk ¹ ; Jacob Jensen ¹ ; John Sosa ¹ ; Robert Williams ¹ ; <i>Hamish Fraser¹</i> ; ¹ The Ohio State University
5:50 PM	Atomic Scale and 3D Characterization of the Heterogeneously Formed S (Al₂CuMg) Precipitates in Al-Cu-Mg Alloy: <i>Zongqiang Feng¹</i> ; Yanqing Yang ¹ ; Yanxia Chen ¹ ; ¹ Northwestern Polytechnical University
6:10 PM	3D Orientation Imaging with Transmission Electron Microscopy: <i>Søren Schmidt¹</i> ; Peter Larsen ¹ ; Xiaoxu Huang ¹ ; ¹ Technical University of Denmark

Tuesday, July 1, 2014

Keynote

Room: Salle de l'Europe

8:00 AM	Keynote Measurements of 4D Microstructural Evolution: J. Gibbs ¹ ; K. Mohan ² ; E. Gulsoy ¹ ; A. Shahaini ¹ ; C Bouman ² ; M. DeGraef ³ ; <i>Peter Voorhees¹</i> ; ¹ Northwestern University; ² Purdue University; ³ Carnegie Mellon University
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8:30 AM **Question and Answer Period**

Session 9: Diffraction and Related Techniques II

Room: Salle de l'Europe

8:45 AM	Invited Image Alignment and Distortion Removal in EBSD Serial Sectioning: <i>David Rowenhorst¹</i> ; Amanda Levinson ¹ ; Alexis Lewis ¹ ; ¹ U.S. Naval Research Laboratory
9:15 AM	Simultaneous Spatial and Orientational Tracking of Ostwald Ripening in Semisolid Al-5 wt% Cu at High Volume Fractions of the Coarsening Phase: Jules Dake ¹ ; James Shatto ¹ ; Thomas Werz ¹ ; Jette Oddershede ² ; Henning Sørensen ³ ; Søren Schmidt ² ; <i>Carl Krill¹</i> ; ¹ Ulm University; ² Technical University of Denmark; ³ University of Copenhagen
9:35 AM	Three-dimensional Microstructural Measurements of Sintered UO₂ Fuel Pellets: <i>Reeju Pokhare¹</i> ; Donald Brown ¹ ; Darrin Byler ¹ ; Shiu Fai Li ² ; Robert Suter ³ ; Peter Kenesei ⁴ ; Levente Balogh ⁵ ; ¹ Los Alamos National Laboratory; ² Lawrence Livermore National Laboratory; ³ Carnegie Mellon University; ⁴ Argonne National Laboratory; ⁵ Queen's University
9:55 AM	Break (35 minutes)

Session 10: Microstructure/Property Relationship in 3D: Deformation and Damage II

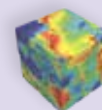
Room: Salle Verdi

8:45 AM	Invited High Speed and High Resolution In-situ Tensile Tests in Synchrotron Tomography Applied to Ductile Damage: <i>Eric Maire¹</i> ; Aude Simar ² ; Heiki Suhonen ³ ; Jerome Adrien ¹ ; Rajmund Mokso ⁴ ; Elodie Boller ⁵ ; ¹ Mateis Universite Lyon INSA; ² UC Louvain; ³ ESRF ID22; ⁴ SLS Tomcat; ⁵ ESRF ID19
9:15 AM	Three-dimensional Porosity-induced Fatigue Cracking Behavior in Hybrid Laser Welded 7075-T6 Al Joints via High-resolution Synchrotron X-ray Microtomography: <i>Wu Sheng-Chuan¹</i> ; Buffiere JY ² ; Zhang Wei-Hua ¹ ; ¹ State Key Laboratory of Traction Power, Southwest Jiaotong University; ² Universite de Lyon INSA LYON
9:35 AM	Three Dimensional Damage Characterisation of Composites Loaded in Tension: A Laboratory X-ray Computed Tomography Investigation: <i>Jasmin Stein¹</i> ; Robert Bradley ¹ ; Constantinos Soutis ¹ ; Philip Withers ¹ ; ¹ The University of Manchester
9:55 AM	Break (35 minutes)

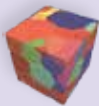
Session 11: Diffraction and Related Techniques III

Room: Salle de l'Europe

10:30 AM	Analysis of Strain in Individual Grains within a Polycrystalline Aggregate using 3D X-ray Diffraction: <i>Margaret Koker¹</i> ; Armand Beaudoin ² ; Ulrich Lienert ³ ; Peter Kenesei ⁴ ; ¹ Cornell University; ² University of Illinois; ³ DESY; ⁴ APS
10:50 AM	Deformation-Induced Intragranular Orientation Spread in Ferrite Investigated by 3DXRD and Forward Modeling: <i>Jette Oddershede¹</i> ; Grethe Winther ² ; Jon Wright ³ ; ¹ DTU Physics; ² DTU Mechanical Engineering; ³ ESRF



11:10 AM	Diffraction-Amalgamated Grain-Boundary Tracking (DAGT) Technique: <i>Hiroyuki Toda</i> ¹ ; Takanobu Kamiko ¹ ; Kentaro Uesugi ² ; Akihisa Takeuchi ² ; Yoshio Suzuki ² ; Masakazu Kobayashi ¹ ; ¹ Toyohashi University of Technology; ² Japan Synchrotron Radiation Research Institute
11:30 AM	3D-XRD Investigation of the High Pressure α-ω Transformation in Polycrystalline Titanium: <i>Sebastien Merkel</i> ¹ ; Amélie Malpot ¹ ; Angelika Rosa ¹ ; Hanns-Peter Liermann ² ; ¹ Universite Lille 1; ² DESY - PETRA III
11:50 AM	Studying Microstructural Evolution of Strain in Austenitic Stainless Steel Under Load using Diffraction Contrast Tomography: <i>Stefan Schmiederer</i> ¹ ; Andrew King ² ; Joao Quinta Da Fonseca ³ ; ¹ ESRF; ² SOLEIL; ³ University of Manchester
12:10 PM	Lunch (On Your Own)
Session 12: Microstructure/Property Relationship in 3D: Deformation and Damage III Room: Salle Verdi	
10:30 AM	3D Tomographic Characterization of Woven Ceramic Textile Composites under In situ Loading at Ultrahigh Temperatures: <i>Hrishikesh Bale</i> ¹ ; Siyuan Xin ¹ ; Ryan Wilkerson ¹ ; Brian Cox ² ; David Marshall ² ; Robert Ritchie ¹ ; ¹ University of California, Berkeley; ² Teledyne Scientific Co LLC
10:50 AM	Mechanical Properties of Crumpled Aluminium Foils: <i>Sandrine Cottrino</i> ¹ ; Eric Maire ¹ ; Damien Fabregue ¹ ; Pierre Viviers ¹ ; ¹ INSA of Lyon-Laboratory MATEIS CNRS UMR5510
11:10 AM	Influence of the Casting Microstructure Upon the Tensile Behaviour in A319 Al-Si Alloy Investigated by X-ray Tomography and Digital Volume Correlation: <i>Long Wang</i> ¹ ; Nathalie Limodin ¹ ; Ahmed El Bartali ¹ ; Julien Rethore ² ; Eric Charkaluk ¹ ; Jean-Yves Buffiere ³ ; ¹ Laboratoire de Mécanique de Lille (LML), CNRS, UMR 8107; ² Laboratoire de Mécanique des Contacts et des Structures (LaMCoS), CNRS, UMR 5259; ³ Laboratoire Matériaux, Ingénierie et Sciences (MATEIS), CNRS, UMR 5510
11:30 AM	Application of Diffraction-Amalgamated Grain Boundary Tracking (DAGT) to Fatigue Crack Propagation Behavior in High Strength Aluminum Alloy: <i>Hui Li</i> ¹ ; Hiroyuki Toda ² ; Kentaro Uesugi ³ ; Akihisa Takeuchi ³ ; Yoshio Suzuki ³ ; Masakazu Kobayashi ¹ ; ¹ Toyohashi University of Technology; ² Kyushu University; ³ Japan Synchrotron Radiation Research Institute
11:50 AM	Spatial Correlation of 3D Datasets Across Multiple Scales: Combining Electron and X-ray Tomography Volumes for Analysis of Creep Cavitation in 316 H Stainless Steel: <i>Tim Burnett</i> ¹ ; ¹ Manchester University/FEI
12:10 PM	Lunch (On Your Own)
Session 13: Dynamic Processes I Room: Salle de l'Europe	
2:00 PM	Invited In-situ Micro- and Nanoscale X-ray Tomography with High Temporal Resolution for Quantitative Analysis of the Microstructure Dynamics: <i>Rajmund Mokso</i> ¹ ; Julie Fife ¹ ; Federica Marone ¹ ; Youssef Souhail ² ; Michele Griffa ³ ; Sarah Irvine ¹ ; Marco Stambanoni ¹ ; ¹ Paul Scherrer Institut; ² IFP Energies Nouvelles; ³ EMPA Dübendorf
2:30 PM	In situ High Temperature Deformation: Interest of 4D Characterization at Higher Strain Rate: <i>Pierre Lhuissier</i> ¹ ; Mario Scheel ² ; Robin Gibaud ¹ ; Louis Marciliac ¹ ; Rémi Daudin ¹ ; Elodie Boller ² ; Luc Salvo ¹ ; Jean-Jacques Blandin ¹ ; ¹ SIMaP/GPM2-CNRS-Grenoble University; ² ESRF
2:50 PM	Phase Contrast X-ray 3D/4D Imaging in Materials Science: <i>Jung Ho Je</i> ¹ ; ¹ Pohang University of Science & Technology
3:10 PM	In-situ Study of the Evolution of the 3D-morphology of Moving Interphases between Individual Grains of Ferrite and Austenite: <i>Sven Offerman</i> ¹ ; Alexander Kostenko ¹ ; Andrew King ² ; Wolfgang Ludwig ³ ; Lucas Van Vliet ¹ ; Richard Huiuzenga ¹ ; ¹ Delft University of Technology; ² Synchrotron SOLEIL; ³ ESRF
3:30 PM	Abnormal Grain Growth by Complexion Transitions Requires Propagation Mechanisms: <i>William Frazier</i> ¹ ; Anthony Rollett ¹ ; Gregory Rohrer ¹ ; ¹ Carnegie Mellon University
3:50 PM	Break (20 minutes)



Session 14: Microstructure/Property Relationship in 3D: Characterization and Simulation III

Room: Salle Verdi

2:00 PM	Invited Fast Fourier Transform-based Micromechanical Modeling with Direct Input from 3-D Images of Polycrystalline Microstructures: <i>Ricardo Lebensohn</i> ¹ ; ¹ Los Alamos National Laboratory
2:30 PM	Modeling of Thermoelastic Stresses in Thermal Barrier Coatings: Sean Donegan ¹ ; <i>Anthony Rollett</i> ¹ ; ¹ Carnegie Mellon University
2:50 PM	Polycrystalline FE Modeling of Deformation and Fatigue Cracking Using Experimental 3D Microstructures: <i>Henry Proudhon</i> ¹ ; Jia Li ¹ ; Yoann Guilhem ² ; Peter Reischig ³ ; Arjen Roos ⁴ ; Samuel Forest ¹ ; Loic Signor ⁵ ; Wolfgang Ludwig ³ ; ¹ MINES ParisTech; ² ENS Cachan; ³ ESRF; ⁴ ONERA; ⁵ ENSMA
3:10 PM	Characterizing Populations, Predicting Presence, and Examining Mechanical Response using Three-Dimensional Reconstructions of Porosity in Laser Welds: <i>Jonathan Madison</i> ¹ ; Corbett Battaile ¹ ; Jeff Rodelas ¹ ; Tyler Payton ¹ ; Larry Aagesen ² ; Victor Chan ² ; Katsuyo Thornton ² ; ¹ Sandia National Laboratories; ² University of Michigan
3:30 PM	Three-dimensional Image-based Modelling of Barnacle Debonding: <i>Andrew Geltmacher</i> ¹ ; Alexis Lewis ¹ ; William Pogue ¹ ; Richard Everett ¹ ; ¹ U.S. Naval Research Laboratory
3:50 PM	Break (20 minutes)

Session 15: Dynamic Processes II

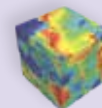
Room: Salle de l'Europe

4:10 PM	Characterizing Annealing Twin Formation during Grain Growth in Nickel: <i>Brian Lin</i> ¹ ; Chris Hefferan ² ; Robert Suter ¹ ; Gregory Rohrer ¹ ; Anthony Rollett ¹ ; ¹ Carnegie Mellon University; ² R.J. Lee Group
4:30 PM	3D Serial Sectioning Studies on Growth during Recrystallization: <i>Yubin Zhang</i> ¹ ; Guohua Fan ² ; Julian Driver ³ ; Dorte Juul Jensen ¹ ; ¹ Danish-Chinese Center for Nanometals, Section for Materials Science and Advanced Characterization, Dept. of Wind Energy, Technical University of Denmark; ² School of Materials Science and Engineering, Harbin Institute of Technology; ³ Ecole des Mines de Saint Etienne
4:50 PM	Experimental Investigation of the Applicability of the MacPherson-Srolovitz Relation to Grain Growth in Al: <i>Jules Dake</i> ¹ ; Jette Oddershede ² ; Henning Sørensen ³ ; Søren Schmidt ² ; Carl Krill ¹ ; ¹ Ulm University; ² Technical University of Denmark; ³ University of Copenhagen
5:10 PM	How Much Does an Individual Grain Boundary Junction Tell Us About the Growth Kinetics of Its Polycrystalline Microstructure?: <i>Dana Zoellner</i> ¹ ; Peter Streitenberger ¹ ; ¹ Otto von Guericke University Magdeburg
5:30 PM	Investigating Recovery Processes in Aluminium Using Dark-field X-ray Microscopy: <i>Hugh Simons</i> ¹ ; Carsten Detlefs ² ; Søren Schmidt ¹ ; Erik Lauridsen ¹ ; Andrew King ³ ; Irina Snigirev ² ; Anatoly Snigirev ² ; Wolfgang Ludwig ⁴ ; Wolfgang Pantleon ¹ ; Henning Poulsen ¹ ; ¹ DTU; ² ESRF; ³ Soleil; ⁴ INSA Lyon
5:50 PM	Comparison of 3D Time-lapse Imaging and Simulation of Grain Growth in Strontium Titanate: <i>Melanie Syha</i> ¹ ; Andreas Trenkle ¹ ; Barbara Loedermann ¹ ; Werner Augustin ¹ ; Daniel Weygand ¹ ; Wolfgang Ludwig ² ; Peter Gumbsch ¹ ; ¹ Karlsruhe Institute of Technology; ² European Synchrotron Radiation Facility
6:10 PM	Growth Path Envelope Analysis of Grain Growth in Titanium from 3DXRD Determination of Grain Volume Distributions: <i>Allan Lyckegaard</i> ¹ ; Burton Patterson ² ; Erik Lauridsen ¹ ; Robert DeHoff ² ; ¹ Technical University of Denmark; ² University of Florida

Session 16: Microstructure/Property Relationship in 3D: Characterization and Simulation IV

Room: Salle Verdi

4:10 PM	3D Discrete Element Simulation of Strength and Toughness of Porous Ceramics: David Jauffres ¹ ; Denis Roussel ¹ ; <i>Christophe Martin</i> ¹ ; Aaron Lichtner ² ; Rajendra Bordia ³ ; ¹ Grenoble-INP; ² University of Washington; ³ Clemson University
4:30 PM	Chalk, a Natural Porous Material: Can We Capture the Essential Properties by 3D Imaging?: <i>Henning Sørensen</i> ¹ ; Dirk Mütter ¹ ; Kim Dalby ¹ ; Diwaker Jha ¹ ; Ralph Harti ¹ ; Reza Gooya ¹ ; Julio Da Silva ² ; Manuel Guizar-Sicairos ² ; Mirko Holler ² ; Heikki Suhonen ³ ; Robert Feidenhans ¹ ; S. Stipp ¹ ; ¹ University of Copenhagen; ² Paul Scherrer Institut; ³ European Synchrotron Radiation Facility



4:50 PM	4D Imaging of Fluid Flow Dynamic in Natural Porous Media by Ultra-fast X-ray Microtomography: <i>Souhail Youssef</i> ¹ ; Rezki Oughanem ¹ ; Elisabeth Rosenberg ¹ ; Eric Maire ² ; Rajmund Mokso ³ ; ¹ IFP Energies Nouvelles; ² INSA-Lyon MATEIS CNRS UMR 5510; ³ Swiss Light Source, Paul Scherrer Institut
5:10 PM	Discrete Electrochemical Modeling of Porous SOFC Electrodes Based on X-ray Tomography 3D Images: <i>Denis Rousset</i> ¹ ; David Jauffres ¹ ; Christophe Martin ² ; Aaron Lichtner ³ ; Rajendra Bordia ⁴ ; ¹ Université de Grenoble / CNRS; ² Other; ³ University of Washington; ⁴ Clemson University
5:30 PM	Investigation of the Nucleation of Intermetallics in Al-Si-Fe Alloys using High Speed In situ Microtomography: Ani Darlapudi ¹ ; Sofiane Terzi ² ; Michelle Alvarez ³ ; Pierre Lhuissier ³ ; <i>Luc Salvo</i> ³ ; Elodie Boller ⁴ ; ¹ Materials Engineering; ² ILL; ³ SIMAP; ⁴ ESRF
5:50 PM	Reliable Pore-size Measurements Based on a Procedure Specifically Designed for Electron Tomography Measurements of Nanoporous Samples: <i>Geert Van Eyndhoven</i> ¹ ; Kees Joost Batenburg ² ; Cynthia Van Oers ³ ; Mert Kurttepel ⁴ ; Sara Bals ⁴ ; Jan Sijbers ¹ ; ¹ University of Antwerp; ² Centrum Wiskunde & Informatica; ³ Laboratory of Adsorption and Catalysis, University of Antwerp; ⁴ Electron Microscopy for Materials Research (EMAT), University of Antwerp
6:10 PM	Characterization of 3D Flow During Friction Stir Welding: <i>Richard Fonda</i> ¹ ; David Rowenhorst ¹ ; Keith Knipling ¹ ; ¹ U.S. Naval Research Laboratory

Wednesday, July 2, 2014

Session 17: New Experimental Techniques II

Room: Salle de l'Europe

8:00 AM	X-Ray Nanotomography: <i>Peter Cloetens</i> ¹ ; ¹ ESRF
8:30 AM	3D Neutron Diffraction - 3DND: <i>Alberto Cereser</i> ¹ ; Axel Steuwer ² ; Stephen Hall ³ ; Markus Strobl ⁴ ; Søren Schmidt ¹ ; ¹ Technical University of Denmark; ² MAX IV Laboratory; ³ Lund University; ⁴ ESS-AB
8:50 AM	Diffraction Contrast Tomography on a Laboratory X-ray Microscope: Arno Merkle ¹ ; Christian Holzner ¹ ; Michael Feser ¹ ; Kevin Fahey ¹ ; <i>Erik Lauridsen</i> ² ; Peter Reischig ² ; Henning Poulsen ² ; ¹ Carl Zeiss X-ray Microscopy; ² Xnovo Technology
9:10 AM	Characterization of 2-micrometer Thick Layers of Metallic Thin Films within Polymer Capsules using Confocal MXRF and X-ray CT: <i>Brian Patterson</i> ¹ ; George Havrilla ¹ ; Kimberly Obrey ¹ ; Igor Usov ¹ ; Nikolaus Cordes ¹ ; ¹ Los Alamos National Laboratory

9:30 AM Break (30 minutes)

Session 18: Analysis at the Atomic Scale

Room: Salle Verdi

8:00 AM	Invited 3D Imaging and Analysis of Materials with Atom Probe Tomography: <i>Emmanuelle Marquis</i> ¹ ; ¹ University of Michigan
8:30 AM	Application of Atom Probe Tomography to Study Solute Segregation at Boundaries and Interfaces in Metals: <i>Elena Pereloma</i> ¹ ; ¹ University of Wollongong
8:50 AM	Multiscale Microstructure Engineering of Steels Using 3D APT: <i>Ilana Timokhina</i> ¹ ; Hossein Beladi ¹ ; ¹ Deakin University
9:10 AM	Atom-probe Tomographic Studies of Novel Gamma(fcc)/Gamma-prime(L12) Strengthened Co-base Superalloys: <i>David Seidman</i> ¹ ; David Dunand ¹ ; Peter Bocchini ¹ ; Daniel Souza ¹ ; Chantal Sudbrack ² ; Ronald Noebe ² ; ¹ Northwestern University; ² NASA Glenn Research Center
9:30 AM	Break (30 minutes)

Session 19: Analysis at the Nanoscale II

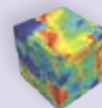
Room: Salle de l'Europe

10:00 AM	Invited Focused Ion Beam Nano-Tomography using Different Detectors: <i>Marco Canton</i> ¹ ; ¹ EPFL-CIME
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PROGRAM PREVIEW (3/13/14)

10:30 AM	Metrology of Three-dimensional Techniques in Focused Ion Beam Microscopy: <i>Helen Jones</i> ¹ ; Ken Mingard ¹ ; David Cox ¹ ; Bartlomiej Winiarski ² ; Ali Gholinia ³ ; ¹ National Physical Laboratory; ² University of Manchester; ³ University of Manchester
10:50 AM	Microstructural Evolution of Nanoporous Gold During Coarsening: <i>Markus Zieher</i> ¹ ; Kaixiong Hu ¹ ; Ke Wang ² ; Jürgen Markmann ² ; Erica Lilleodden ¹ ; ¹ Helmholtz-Zentrum Geesthacht; ² TU Hamburg-Harburg
11:10 AM	3D Structure of Nanoporous Sintered Silver and its Evolution During Aging: <i>James Carr</i> ¹ ; Séverine Boyer ² ; Pascal Gadaud ² ; Michel Gerland ² ; Peter Lee ¹ ; George Thompson ¹ ; Xavier Milhet ² ; ¹ The Manchester University; ² Prime Institute UPR CNRS 3346
11:30 AM	Ostwald Ripening 18722 A Direct Comparison of Experiment and Simulation: <i>Thomas Werz</i> ¹ ; Michael Heinze ² ; Nan Wang ³ ; Long-Qing Chen ³ ; Stefan Odenbach ² ; Carl Krill III ¹ ; ¹ Ulm University; ² Dresden University of Technology; ³ Pennsylvania State University
11:50 AM	3D Microstructural Characterization of In Situ TiC and Graphite Reinforced Nickel Matrix Composites: Tushar Borkar ¹ ; John Sosa ² ; Sundeep Gopagoni ¹ ; Jamie Tiley ³ ; Hamish Fraser ² ; <i>Rajarshi Banerjee</i> ¹ ; ¹ University of North Texas; ² The Ohio State University; ³ U.S. Airforce Research Laboratory
12:10 PM	Lunch (On Your Own)
Session 20: Microstructure/Property Relationship in 3D: Characterization and Simulation V Room: Salle Verdi	
10:00 AM	Invited Using High Energy X-ray Diffraction and Finite Elements and Forward Modeling Methods to Understand Crystal Scale Plasticity: <i>Matthew Miller</i> ¹ ; Paul Dawson ¹ ; ¹ Cornell University
10:30 AM	Image Based Modeling of Plasticity in Polycrystals in 2D and 3D: <i>Sylvain Dancette</i> ¹ ; ¹ Mateis, Université de Lyon, INSA Lyon
10:50 AM	Underpinning and Benchmarking Crystal Plasticity Simulations with Micro-mechanical Experiments: David Eastman ¹ ; Jessica Krogstad ¹ ; William Lenthe ² ; Tresa Pollock ² ; <i>Kevin Hemker</i> ¹ ; Paul Shade ³ ; Todd Turner ³ ; Michael Uchic ³ ; ¹ Johns Hopkins University; ² University of California Santa Barbara; ³ U.S. Air Force Research Laboratory
11:10 AM	High Resolution Reciprocal Space Mapping of Single Grains: <i>Ulrich Lienert</i> ¹ ; Felix Thiel ² ; Torben Fischer ³ ; Wolfgang Pantleon ² ; ¹ Deutsches Elektronen-Synchrotron; ² Technical University of Denmark; ³ Helmholtz-Zentrum Geesthacht
11:30 AM	Investigation of Stress Relaxation through X-ray Scattering: <i>Armand Beaudoin</i> ¹ ; Wenli Tang ¹ ; Kamalika Chatterjee ¹ ; Dallas Trinkle ¹ ; Margaret Koker ² ; Ulrich Lienert ³ ; Peter Kenesei ⁴ ; ¹ University of Illinois at Urbana-Champaign; ² Cornell University; ³ Deutsch Elektronen Synchrotron; ⁴ Argonne National Laboratory
11:50 AM	Characterization of Strain Mechanisms in Lead-free Piezoceramics: <i>Marta Majkut</i> ¹ ; Jette Oddershede ¹ ; John Daniels ² ; Søren Schmidt ¹ ; ¹ Technical University of Denmark; ² University of New South Wales
12:10 PM	Lunch (On Your Own)
Session 21: Acquisition and Handling of 3D Data III Room: Salle de l'Europe	
2:00 PM	Invited A Generalized Forward Projector for the Electron Back-scatter Diffraction Modality: <i>Marc De Graef</i> ¹ ; ¹ Carnegie Mellon University
2:30 PM	A Framework for Quantifying Errors in Digital Representations of Microstructure: <i>Gregory Loughnane</i> ¹ ; Michael Groeber ² ; Michael Uchic ² ; Ramana Grandhi ¹ ; ¹ Wright State University; ² U.S. Air Force Research Laboratory
2:50 PM	Quantitative Fractography of Corrosion-Resistant Alloys for Oilfield Applications: <i>Wei Chen</i> ¹ ; John Williard ¹ ; Somesh Mukherjee ¹ ; John Stevens ¹ ; Ting Chen ² ; Xingbo Liu ² ; ¹ Baker Hughes; ² West Virginia University
3:10 PM	Break (20 minutes)

**Session 22: Diffraction and Related Techniques IV**

Room: Salle Verdi

2:00 PM	Invited Advances in Analysis of 3D Orientation Data Sets Obtained by FIB-EBSD Tomography: <i>Peter Konijnenberg</i> ¹ ; Guillaume Stechmann ¹ ; Stefan Zaeferrer ¹ ; Dierk Raabe ¹ ; ¹ Max-Planck-Institute for Iron Research
2:30 PM	Optimized Set-up for Static 3D EBSD in a FIB SEM: <i>Julien Guyon</i> ¹ ; Nathalie Gey ¹ ; Jean Claude Menard ² ; Daniel Goran ³ ; Fabian Pérez-Willard ⁴ ; Smail Chalal ⁵ ; ¹ LEM3; ² NewTec Scientific; ³ Bruker Nono GmbH; ⁴ Carl Zeiss Microscopy; ⁵ Carl Zeiss S.A.S.
2:50 PM	Reconstruction of Local Orientation in Grains using a Discrete Representation of Orientation Space: <i>Nicola Viganò</i> ¹ ; Wolfgang Ludwig ¹ ; Kees Batenburg ² ; ¹ INSA Lyon, ESRF Grenoble; ² CWI Amsterdam, University Antwerp
3:10 PM	Break (20 minutes)
Closing Session and Panel Discussion	
Room: Salle de l'Europe	
3:30 PM	Invited 3D Materials Science: Where We've Been, Where We Are Now, and Where We Need to Go: <i>George Spanos</i> ¹ ; David Howe ¹ ; ¹ TMS
4:00 PM	Panel Discussion

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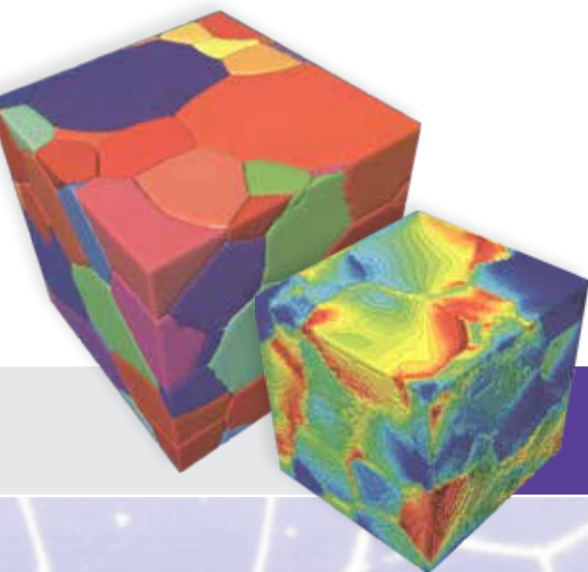
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