



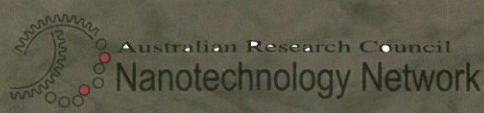
# IUMRS-ICEM 2008

**International Conference on Electronic Materials 2008**  
presented by International Union of Materials Research Societies

**28th July - 1st August 2008**

Hilton Sydney, Australia

**2008 Conference on Optoelectronic and Microelectronic Materials and Devices (COMMAD 2008)**



<http://www.aumrs.com.au/ICEM-08/>



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Oral Program of Symposium J: Synchrotron Radiation

	Mon	Tue	Wed	Thu	Fri
09:00 - 09:15				<i>Sub-Nanosecond X-Ray Absorption Spectroscopy: Stru...</i> <u>Fons</u> (30m-inv)	
09:15 - 09:30					
09:30 - 09:45				<i>New Opportunities to Study Dopants and Defects by ...</i> <u>Boscherini</u> (30m-inv)	
09:45 - 10:00					
10:00 - 10:15				<i>Thermal and Electromigration-Induced Strains in Po...</i> <u>Cargill III</u> , Zhang	
10:15 - 10:30				<i>Use of X-Ray Absorption and Emission Spectroscopy ...</i> Preston, <u>Ruck</u> , Trodahl, Smith, Piper, Zhang, DeM...	
11:00 - 11:15				<i>Characterization of Ferromagnet/Semiconductor Hete...</i> <u>Jenichen</u> , Kaganer, Shayduk, Braun (30m-inv)	
11:15 - 11:30					
11:30 - 11:45				<i>Synchrotron Imaging for Non-Destructive Characteri...</i> <u>Baumbach</u> (30m-inv)	
11:45 - 12:00					
12:00 - 12:15				<i>Local Strain in Ternary Compound Semiconductors</i> <u>Hussain</u> , Schnohr, Foran, Ridgway	
12:15 - 12:30				<i>Synchrotron X-Ray Diffraction Line Profile Analyti...</i> <u>Stevens</u>	
L1					
14:00 - 14:15				<i>Surface Compositional Profiles of Self-Assembled I...</i> <u>Heun</u> , Sorba, Biasiol, Mlakar, Magri, Locatelli,	
14:15 - 14:30				... (30m-inv)	
14:30 - 14:45				<i>Small and Wide Angle X-Ray Scattering - Adventures...</i> <u>Cookson</u> (30m-inv)	
14:45 - 15:00					
15:00 - 15:15					
15:15 - 15:30					
16:00 - 16:15				<i>X-Ray Diffraction From Semiconductor Nanostructure...</i> <u>Stangl</u> , Mocuta, Mundboth, Diaz, Metzger,	
16:15 - 16:30				Bauer, ... (30m-inv)	
16:30 - 16:45				<i>3D X-Ray Diffraction Nanoscopy: In Situ Non-Destru...</i> <u>Nikulin</u> , Darahanau, Zatsepin, Dilanian, Muddle, ...	
16:45 - 17:00				<i>EXAFS Study of Ni Surroundings in Metal Induced Cr...</i> <u>Grisenti</u> , Dalba, Fornasini, Rocca	
17:00 - 17:15					
17:15 - 17:30					

# SYMPOSIUM J

## Symposium J: Synchrotron Radiation

### Symposium Chairs

Andrei Nikulin (Monash University)  
Mark Ridgway (Australian National University)  
Federico Boscherini (University of Bologna)  
Berndt Jenichen (Paul-Drude-Institut/BESSY)

### Symposium Sponsors

ARNAM  
Australian Synchrotron Research Program (ASRP)  
Monash University

\* Invited presentation

#### SESSION J4-S1: Synchrotron Radiation I

Chair: Mark Ridgway  
Thursday, July 31, 2008  
Level 4 - Room 4, Hilton Sydney

9:00 AM \*J4-S1.1 (invited)

**Sub-Nanosecond X-Ray Absorption Spectroscopy: Structural Observations of the Optical Recording Process in  $\text{Ge}_2\text{Sb}_2\text{Te}_5$ .** (#1269) Paul Fons, Center for Applied Near-Field Optics Research, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan.

9:30 AM \*J4-S1.2 (invited)

**New Opportunities to Study Dopants and Defects by Soft X-Ray Absorption Fine Structure.** (#414) Federico Boscherini, Department of Physics, University of Bologna, Italy.

10:00 AM J4-S1.3

**Thermal and Electromigration-Induced Strains in Polycrystalline Conductor Lines.** (#659) G. S. Cargill III, H. Zhang; Department of Materials Science and Engineering, Lehigh University, Bethlehem, Pennsylvania, USA.

10:15 AM J4-S1.4

**Use of X-Ray Absorption and Emission Spectroscopy in the Study of Electronic Structure.** (#771) Andrew Preston<sup>1</sup>, Ben John Ruck<sup>1</sup>, Joe Trodahl<sup>1</sup>, Kevin Smith<sup>2</sup>, Louis Piper<sup>2</sup>, Yufeng Zhang<sup>1</sup>, Alex DeMasi<sup>1</sup>, James Downes<sup>1</sup>, Walter Lambrecht<sup>3</sup>; <sup>1</sup>School of Chemical and Physical Sciences, Victoria University of Wellington, New Zealand; <sup>2</sup>Boston University, Massachusetts, USA; <sup>3</sup>Case Western Reserve University, Cleveland, Ohio, USA.

MORNING BREAK 10:30 AM - 11:00 AM

#### SESSION J4-S2: Synchrotron Radiation II

Chair: Frederico Boscherini  
Thursday, July 31, 2008  
Level 4 - Room 4, Hilton Sydney

11:00 AM \*J4-S2.1 (invited)

**Characterization of Ferromagnet/Semiconductor Heterostructures by Grazing Incidence Diffraction of X-Rays.** (#29) Bernd Jenichen, Vladimir Kaganer, Roman Shayduk, Wolfgang Braun; Paul-Drude-Institut, Berlin, Germany.

11:30 AM \*J4-S2.2 (invited)

**Synchrotron Imaging for Non-Destructive Characterization of Materials, Components and Devices.** (#1327) Tilo Baumbach, ANKA, Forschungszentrum Karlsruhe GmbH, Eggenstein-Leopoldshafen, Germany.

12:00 PM J4-S2.3

**Local Strain in Ternary Compound Semiconductors.** (#596) Zohair Hussain<sup>1</sup>, Claudia S Schnohr<sup>1</sup>, Garry J. Foran<sup>2</sup>, Mark C Ridgway<sup>1</sup>; <sup>1</sup>Electronic Materials Engineering Department, Research School of Physical Sciences and Engineering, The Australian National University, Australian Capital Territory, Australia; <sup>2</sup>Australian Nuclear Science and Technology Organisation, Australia.

12:15 PM J4-S2.4

**Synchrotron X-Ray Diffraction Line Profile Analysis of Copper Nanoclusters.** (#226) Kevin John Stevens, Quest Reliability/Industrial Research Ltd, New Zealand.

LUNCH 12:30 PM - 2:00 PM

#### SESSION J4-S3: Synchrotron Radiation III

Chair: Bernd Jenichen  
Thursday, July 31, 2008  
Level 4 - Room 4, Hilton Sydney

2:00 PM \*J4-S3.1 (invited)

**Surface Compositional Profiles of Self-Assembled InAs/GaAs Quantum Rings.** (#69) Stefan Josef Heun<sup>1</sup>, Lucia Sorba<sup>1</sup>, Giorgio Biasiol<sup>2</sup>, Tomaz Mlakar<sup>2</sup>, Rita Magri<sup>3</sup>, Andrea Locatelli<sup>4</sup>, Tevfik Onur Mentem<sup>4</sup>; <sup>1</sup>NEST CNR-INFM and Scuola Normale Superiore, Pisa, Italy; <sup>2</sup>Laboratorio Nazionale TASC INFM-CNR, Italy; <sup>3</sup>S3 INFM-CNR and Università di Modena e Reggio Emilia, Italy; <sup>4</sup>Sincrotrone Trieste S.C.p.A., Italy.

2:30 PM \*J4-S3.2 (invited)

**Small and Wide Angle X-Ray Scattering - Adventures on the Nanoscale.** (#1279) David J Cookson, Australian Synchrotron, Australia.

AFTERNOON BREAK 3:30 PM - 4:00 PM

#### SESSION J4-S4: Synchrotron Radiation IV

Chair: Bernd Jenichen  
Thursday, July 31, 2008  
Level 4 - Room 4, Hilton Sydney

4:00 PM \*J4-S4.1 (invited)

**X-Ray Diffraction From Semiconductor Nanostructures: Beyond the Ensemble Average.** (#1456) J Stangl, C Mocuta, K Mundboth, A Diaz, T H Metzger, G Bauer, A V Zozulya, O M Yefanov, I Vartanyants; Institute for Semiconductor Physics, Johannes Kepler University Linz, Austria.

4:30 PM J4-S4.2

**3D X-Ray Diffraction Nanoscopy: In Situ Non-Destructive Imaging of Dispersed Nano-Particles, Cracks and Metal-Metal Interfaces.** (#153) Andrei Nikulin<sup>1</sup>, Aliaksandr Darahanau<sup>1</sup>, Nadia Zatsepina<sup>1</sup>, Ruben Dilanian<sup>1</sup>, Barry Muddle<sup>1</sup>, Alexei Souvorov<sup>2</sup>, Osami Sakata<sup>2</sup>; <sup>1</sup>School of Physics, Monash University, Victoria, Australia; <sup>2</sup>Spring-8/Japan Synchrotron Radiation Research Institute (JASRI), Japan.

4:45 PM J4-S4.3

**EXAFS Study of Ni Surroundings in Metal Induced Crystallization of Thin Film Amorphous Silicon.** (#173) Rolly Grisenti, Giuseppe Dalba, Paolo Fornasini, Francesco Rocca; Dipartimento di Fisica, Università degli Studi di Trento, Italy.

#### SESSION J4-S5: Poster Session:

Chair: Rob Elliman, Laurie Faraone, C. Jagadish, Max Lu, John O'Connor  
Thursday, July 31, 2008  
Level 3 - Grand Ballroom, Hilton Sydney

J4-S5.1

**Synchrotron Characterization of Size Effects on the Structural and Thermal Properties of Ge Nanocrystals.** (#468) Leandro L. Araujo, Mark C. Ridgway; Electronic Materials Engineering Department, Research School of Physical Sciences and Engineering, The Australian National University, Australian Capital Territory, Australia.

#### **J4-S5.2**

**Real-Time X-Ray Imaging of Crack Propagation during Ultrasonic Fatigue.** (#1172) Roy Clarke, Liu Liu, Naji Husseini, Christopher Torbet, Divine Kumah, Tresa M Pollack, Wayne Jones; Department of Physics, University of Michigan, Ann Arbor, Michigan, USA.

#### **J4-S5.3**

**Nanoscale Profiling of Weakly Diffracting Structures: Non-Destructive Characterisation of Structure Variation on Interfaces between Dissimilar Materials.** (#90) Alexander V Darahanau, Andrei Nikulin, Ruben A Dilanian, Barry Muddle; Monash University, Victoria, Australia.

#### **J4-S5.4**

**Angle-Dependent SAXS Measurements of Elongated Pt Nanocrystals.** (#469) Raquel Giulian<sup>1</sup>, Patrick Kluth<sup>1</sup>, David John Sprouster<sup>1</sup>, Claudia Sarah Schnohr<sup>1</sup>, Leandro Langie Araujo<sup>1</sup>, Aidan Byrne<sup>2</sup>, David J. Cookson<sup>3</sup>, Mark Cameron Ridgway<sup>1</sup>; <sup>1</sup>Electronic Materials Engineering Department, Research School of Physical Sciences and Engineering, The Australian National University, Australian Capital Territory, Australia ; <sup>2</sup>College of Science, The Australian National University, Australian Capital Territory, Australia ; <sup>3</sup>Australian Synchrotron Research Program, Australia.

#### **J4-S5.5**

**Measurement of a Fine Structure in Latent Ion Tracks in a-SiO<sub>2</sub> Using Small Angle X-Ray Scattering.** (#466) Patrick Kluth, Claudia S. Schnohr, David J. Sprouster, Raquel Giulian, Douglas Da Silva, Aidan P. Byrne, Mark C. Ridgway, David J. Cookson, Marcel Toulemonde, Christina Trautmann; Electronic Materials Engineering Department, Research School of Physical Sciences and Engineering, The Australian National University, Australian Capital Territory, Australia.

#### **J4-S5.6**

**Mn K-Edge XANES Studies of Pb<sub>1-x</sub>Mn<sub>x</sub>Te Systems.** (#1428) Ivana Radisavljevic<sup>1</sup>, Nenad Ivanovic<sup>1</sup>, Nikola Novakovic<sup>1</sup>, Nebojsa Romcevic<sup>1</sup>, Heinz-Eberhard Mahnke<sup>2</sup>; <sup>1</sup>Vinca Institute of Nuclear Sciences, Belgrade, Serbia and Montenegro ; <sup>2</sup>Hahn-Meitner-Institut, Germany.

#### **J4-S5.7**

**Vibrational Properties of Cobalt Nanoparticles.** (#548) David John Sprouster, Electronic Materials Engineering Department, Research School of Physical Sciences and Engineering, The Australian National University, Australian Capital Territory, Australia.

#### **J4-S5.8**

**The Electronic Structure of Amino-Acids Determined by Synchrotron-Based Photoemission Spectroscopy.** (#1077) Anton Patrick Joseph Stampfl<sup>1</sup>, Nicola Asquith<sup>1</sup>, Susan Montgomery Graham<sup>1</sup>, Justin King-Lacroix<sup>1</sup>, Feng Wang<sup>2</sup>, Ivan Kempson<sup>3</sup>, Yaw-Wen Yang<sup>4</sup>, Yeukuang Hwu<sup>5</sup>; <sup>1</sup>Australian Nuclear Science and Technology Organisation, Australia ; <sup>2</sup>Swinburne University of Technology, Hawthorn, Victoria, Australia ; <sup>3</sup>Ian Wark Research Institute, The University of South Australia, Australia ; <sup>4</sup>National Synchrotron Radiation and Research Center, Australia ; <sup>5</sup>Institute of Physics, Academia Sinica, Taiwan.

#### **J4-S5.9**

**The Adsorption of Glycine on Alumina: Surface Complexation and Polymerisation.** (#1082) Anton Patrick Joseph Stampfl<sup>1</sup>, Julie Lynette Murison<sup>1</sup>, Tun-Wen Pi<sup>2</sup>, Yaw-Wen Yang<sup>2</sup>, Yoa-Chang Lee<sup>2</sup>, Hwu Yeukuang<sup>3</sup>; <sup>1</sup>Australian Nuclear Science and Technology Organisation, Australia ; <sup>2</sup>National Synchrotron Radiation Center, Taiwan ; <sup>3</sup>Institute of Physics, Academia Sinica, Taiwan.

#### **J4-S5.10**

**A Data-Constrained Computational Model for 3D Material Compositions.** (#977) Sam Yang, Australian Commonwealth Scientific and Research Organization (CSIRO), Australia.

#### **J4-S5.11**

**X-Ray Diffraction Studies of Nanostructures: Applications of a Novel Triple Axis Diffractometry Technique to Early Detection of Nanoparticle Growth, from Reciprocal Space Maps Using Synchrotron X-Rays.** (#86) Nadia Zatsepin, Monash University, Victoria, Australia.