

# Program

## The 13th International Conference on High Pressure Semiconductor Physics, Fortaleza, Ceará, Brazil, 22-25 July, 2008

### Tuesday, July 22, 2008

16:00 – 19:30 Registration at Hotel Luzeiros

**Welcome Reception:** 19:30 to 21:30 at Hotel Luzeiros

### Wednesday, July 23, 2008

#### Welcome Session

8:45 – 8:50 **Vólia Lemos** - Chair, Universidade Federal do Ceará, Brazil

Welcome and opening remarks

8:50 – 9:20 **Brazilian Invited Speakers**

#### Session 1: Low-Dimensional Semiconductors

**Chair: Niels E. Christensen**

9:20 - 9:55 **Invited Talk 01 – Alejandro R. Goñi**, Institut de Ciència de Materials de Barcelona (ICMAB), Bellaterra, Spain.

*Phonon Pressure Coefficient as Nanoscale Probe of Strain in SiGe Alloys & Quantum Dots*

9:55 – 10:15 **Oral 01 - Eugene M. Dizhur**, Institute for High Pressure Physics, Troitsk, Russian Federation

*Assumed Peierls Transition in NbS<sub>3</sub> under Pressure.*

#### 10:15 – 10:30 Coffee Break 1

#### Session 2: Low-Dimensional Semiconductors and alloys

**Chair: Agata Kamińska**

10:30 – 11:05 **Invited Talk 02 – Angelo J. Mascarenhas**, National Renewable Energy Laboratory, Center of Materials Science, Golden, United States of America

*Comparison of III-V-Bi alloys with III-V-N alloys using high pressure.*

11:05 – 11:25 **Oral 02 – Bernard A. Weinstein**, State University of New York at Buffalo, United States of America

*Pressure Dependence of the Raman Active Vibrations in InP-CdS Hybrid Nanoparticles*

11:25 – 11:45 **Oral 03 – Carlos Eduardo Maduro de Campos**, Universidade Federal de Santa Catarina, Florianópolis, Brazil

*Pressure-Induced Phase Transitions of Mechanical Alloyed Nanocrystals*

11:45 – 12:05 **Oral 04 – Anastasios Antonakos**, National Technical University of Athens, Greece

*Pressure effects on Pr<sub>0.6</sub>Ca<sub>0.4</sub>MnO<sub>3</sub> thin films*

12:05 – 12:25 **Oral 05 – Suhuai Wei**, National Renewable Energy Laboratory, Golden, United States of America

*Theoretical study of crystal structures and hardness of BN/C2 alloys*

**12:25 – 14:25 Lunch 1**

**Session 3: Stimulated, Light Emission, and Applications**

**Chair: Stephen Sweeney**

14:25 – 15:00 **Invited Talk 03 – Don J. Wolford**, Iowa State University, Ames, United States of America

*N Traps in GaAs:N Under High Pressures and GaAsP:N Alloying*

15:00 – 15:20 **Oral 06 – Witold Andrzej Trzeciakowski**, Institute of High Pressure Physics, Warsaw, Poland

*Pressure tuned tapered lasers with high power and beam quality*

15:20 – 15:40 **Oral 07 – Stephen Sweeney**, University of Surrey, Guilford, United Kingdom

*Band anti-crossing and carrier recombination in dilute nitride phosphide based lasers and light emitting diodes*

**Poster Session 1**

15:40 – 16:10 **Invited Speaker 2: Alain Polian**, Institut de Minéralogie et de Physique des Milieux Condenses, Paris, France

*High lights of Poster Session 1*

16:10 – 18:10 **Coffee break 2 and** Presentation of Posters P1-1 to P1-25

**Thursday, July 24, 2008**

**Session 4: Carbon Related Semiconductors**

**Chair: Sotirios Ves**

8:45 – 9:20 **Invited Talk 04 - Alfonso San Miguel Fuster**, Université Lyon 1, Lyon, France

*Nanomaterials under high pressure: carbon nanotubes, peapods, fullerenes and derivatives.*

9:20 – 9:40 **Oral 08 – Ahmad J. Ghandour**, University of London, Queen Mary, United Kingdom

*G-band behaviour of CarboLex Single Walled Carbon Nanotubes under pressure: Different excitation Laser effect*

## **Session 5: Structures at High Pressure from Random Searching**

**Chair: Sotirios Ves**

9:40 – 10:15 **Invited Talk 05 – Richard J. Needs**, Cavendish Laboratory, Cambridge, United Kingdom

*Structures at high pressure from random searching.*

**10:15 – 10:30 Coffee Break 3**

## **Session 6: Electronic Structure, X-Ray Diffraction, X-Ray Absorption, and New Techniques**

**Chair: Yoshihisa Mori**

10:30 – 11:05 **Invited Talk 06 – Frederic Decremps**, Université Pierre et Marie Curie, Paris, France

*A new technique to investigate the elastic properties of opaque materials in diamond anvil cell.*

11:05 – 11:25 **Oral 9 – Yoshihisa Mori**, Okayama University of Science Okayama, Japan

*X-ray diffraction study of  $\alpha$ -Boron up to 200 GPa*

11:25 – 11:45 **Oral 10 – Alain Polian**, Institut de Minéralogie et de Physique des Milieux Condensés, Paris, France

*ZnxBel-xSe under high pressure: x-ray diffraction and absorption studies*

11:45 – 12:05 **Oral 11 – Sergiy Trushkin**, Polish Academy of Sciences, Warsaw, Poland  
*High-Pressure Photoluminescence Studies of ZnS, ZnSe, ZnTe Crystals, Doped With Cr<sup>2+</sup> Ions.*

12:05 – 12:25 **Oral 12 - Marco Tadeu D'Azeredo Orlando**, Universidade Federal do Espírito Santo, Brazil

*High-pressure cell for X-ray absorption, X-ray diffraction and magnetic susceptibility*

**12:25 – 14:25 Lunch 2**

## **Session 7: Vibrational properties**

**Chair: Gerasimos A. Kourouklis**

14:25 – 15:00 **Invited Talk 07 – Karl Syassen**, Max-Planck-Institut für Festkörperforschung, Stuttgart, Germany

*The insulator-metal borderline of transition metal oxides under pressure.*

15:00 – 15:20 **Oral 13 – Juan Sebastian Reparaz**, Institut de Ciència de Materials de Barcelona (ICMAB), Bellaterra, Spain

*Accurate determination of the Grüneisen parameter of the optical phonons in SiGe alloys for the whole compositional range*

15:20 – 15:40 **Oral 14 – Horácio Wagner Leite Alves**, Universidade Federal de São João del Rei, Brazil

*Phonons and their pressure dependence of MnAs and MnN by ab initio calculations*

**Poster Session 2**

15:40 – 16:10 **Invited Speaker 3: Peter Y. Yu**, University of California, Berkeley, United States of America

*High lights of Poster Session II*

16:10 – 18:10 **Coffee break 4 and** Presentation of Posters P2-1 to P2-25

**Friday, July 25, 2008**

**Session 8: Electronic Structure and Elastic Properties - Theory**

**Chair: Su-Huai Wei**

8:45 – 9:20 **Invited Talk 08 - Niels E. Christensen**, University of Aarhus, Aarhus, Denmark

*Electronic and optical properties of III-nitrides under pressure*

9:20 – 9:40 **Oral 15 – Maria de los Angeles Caravaca**, Universidad Nacional del Nordeste, Resistência, Argentina

*Pressure dependence of the electronic structure and elastic properties of TiO<sub>2</sub>, ZrO<sub>2</sub> and HfO<sub>2</sub> in the hardest phase known*

9:40 – 10:00 **Oral 16 – Carlos Alberto Duque**, Universidad de Antioquia, Medellín, Colombia

*Effects of hydrostatic pressure on the conduction-electron g factor in GaAs-(Ga,Al)As quantum wells*

**10:00 – 10:15 Coffee Break 5**

**Session 9: Superconductivity and Optical Properties**

**Chair: Kenichi Takarabe**

10:15 – 10:50 **Invited Talk 09 – Evgeni A. Ekimov**, Russian Academy of Sciences, Troitsk, Russian Federation

*Superconductivity in diamond induced by boron doping at high pressure.*

10:50 – 11:25 **Invited 10 – Koun Shirai**, Osaka University, Japan

*Utilization of high pressure for synthesizing superconducting semiconductors: –analysis of Ekimov's method–*

11:25 – 11:45 **Oral 17 - Agata Kamińska**, Polish Academy of Sciences, Warsaw, Poland

*High-pressure photoluminescence studies of near-lattice-matched GaN/AlInN quantum wells*

11:45 – 12:05 **Oral 18 – Marius Millot**, Laboratoire National des Champs Magnétiques Pulsés, Toulouse, France

*High pressure and high magnetic field behavior of free and donor-bound-exciton photoluminescence in InSe*

**12:05 – 14:05 Lunch 3**

**Session 10: Electrical, Structural and Vibrational Properties**

**Chair: Andrzej Suchocki**

14:05 – 14:40 **Invited Talk 11 - Efthymios Liarokapis**, National Technical University of Athens, Athens, Greece

*Tuning of the charge ordered state in manganite thin films by internal or external strains.*

14:40 -15:00 **Oral 19 – Leszek Konczewicz**, University Montpellier 2, France

*Effect of pressure on electrical properties of short period InAs/GaSb superlattice*

15:00 -15:20 **Oral 20 – Stephen Sweeney**, University of Surrey, Guilford, United Kingdom

*Evidence of carrier leakage into L-valley in InAs-based quantum cascade lasers under high hydrostatic pressure*

15:20 – 15:55 **Invited Talk 12 - Ali Zaoui**, Université des Sciences et Technologies de Lille, Villeneuve D'Asq, France

*High pressure phases in the calcite rock: Structural and vibrational analysis*

**15:55 – 16:10 Coffee Break 6**

**Closing Session:**

**Chair : Alfonso Munoz**

16:10 - 16:40 **Invited Speaker 4: Bernard A. Weinstein**, State University of New York at Buffalo, United States of America

**Conference Banquet 19:30 – 22:00**