



## 12<sup>th</sup> Int. Conf. on High Pressure Semiconductor Physics Program Schedule

### Sunday, July 30, 2006

15:00 – 20:00 **Registration & Visit to the Museum** – Participants and accompanying persons would have the opportunity, after their registration, to visit the CosmoCaixa Museum, the first interactive museum in Spain.

### Monday, July 31, 2006

**Coffee:** 8:30 – 9:00

#### Welcome Session

9:00 – 9:05 **A.R. Goñi**, *Welcome and opening remarks*

9:05 – 9:15 **I. López**, *Overview about the CosmoCaixa Museum*

9:15 – 9:30 **M. Torné**, *ICREA & the Catalan Scientific System*

#### Session 1: Nitrides

**Chair: Alfonso Muñoz**

9:30 – 10:00 **R. Laskowski** (invited), TU Wien - *Free excitons in AlN under pressure*

10:00 – 10:30 **P.J. Klar** (invited), Philipps-University of Marburg - *High-pressure experiments on dilute nitride alloys*

**Coffee Break:** 10:30 – 11:00

11:00 – 11:30 **G. Franssen** (invited), UNIPRESS, Warsaw - *Hydrostatic pressure: a unique tool for the investigation of nitride light emitting structures*

#### Session 2: Electronic Structure

**Chair: Manuel Cardona**

11:30 – 11:45 **S.-H. Wei**, NREL, Golden - *First-principles calculation of hydrostatic absolute deformation potentials and band offsets of semiconductors*

11:45 – 12:00 **S. Gilliland**, Valencia University - *Electronic structure of CuAlO<sub>2</sub> and CuScO<sub>2</sub> delafossites under pressure*

12:00 – 12:15 **F. Rodríguez**, University of Cantabria - *Variation of the Jahn-Teller distortion with pressure in perovskite layers A<sub>2</sub>CuCl<sub>4</sub>. Influence on the Charge-Transfer band*

**Lunch** 12:30 – 14:30

#### Session 3: Transport Properties

**Chair: Alf Adams**

14:30 – 15:00 **A. Segura** (invited), Valencia University, *Transport measurements under pressure in III-VI layered semiconductors*

15:00 – 15:30 **A. Patané** (invited), University of Nottingham, *The fragmented band structure of dilute Ga(AsN) alloys revealed by hydrostatic pressure and magnetic field*

15:30 – 15:45 **I.V. Antonova**, Institute of Semiconductor Physics, Novosibirsk - *Pressure related defect engineering for silicon-on-insulator-like structures produced by either oxygen or nitrogen ion implantation*

#### Session 4: Devices

**Chair: Kenichi Takarabe**

15:45 – 16:15 **A.R. Adams** (invited), University of Surrey, *Some Trends in the Fundamental Processes Occurring in Semiconductor Optoelectronic Devices*

16:15 – 16:45 **W. Trzeciakowski** (invited), UNIPRESS, Warsaw - *Pressure tuning of semiconductor lasers*

#### Poster Session I

17:00 – 19:30 **Poster 1 to 44** (hallway outside Ágora room)

**Welcome Reception** 20:00 – 22:00 at the CosmoCaixa Plaza

## Tuesday, August 1, 2006

**Coffee:** 8:30 – 9:00

### Session 5: Low-Dimensional Systems Chair: Volia Lemos

9:00 – 9:30	<b>B.A. Weinstein</b> (invited), SUNY at Buffalo - <i>Raman spectroscopy under pressure in nanoparticle semiconductors</i>
9:30 – 9:45	<b>A. Bernardi</b> , ICMAB-CSIC, Barcelona - <i>Raman scattering of carbon-induced Ge dots under hydrostatic pressure</i>
9:45 – 10:00	<b>I.P. Marko</b> , University of Surrey - <i>Band gap dependence of the recombination processes in InAs/GaAs quantum dots studied using hydrostatic pressure</i>
10:00 – 10:15	<b>G.-H. Li</b> , Institute of Semiconductors, Beijing - <i>Pressure Behavior of UV and Green Emissions in ZnO Micro-rods</i>
10:15 – 10:30	<b>P.Y. Yu</b> , University of California, Berkeley - <i>Determination of the Wave Vector Dependence of Pressure Coefficients of Optical Phonons by Resonant Raman Scattering</i>

**Coffee Break:** 10:30 – 11:00

### Session 6: Strain Effects Chair: Witold Trzeciakowski

11:00 – 11:30	<b>D.J. Dunstan</b> (invited), Queen Mary University of London - <i>Strength of strained quantum wells and other small scale structures</i>
11:30 – 11:45	<b>P.D. Lacharmoise</b> , ICMAB-CSIC, Barcelona - <i>Strain storage in semiconductor micro-origami tubes: a study by Raman spectroscopy</i>
11:45 – 12:15	<b>D.J. Paul</b> (invited), University of Cambridge - <i>An Overview of Strained-Si/SiGe Heterostructures in Microelectronics and Optics</i>

**Lunch** 12:30 – 14:30

### Session 7: Structural Phase Transitions I Chair: Bernie Weinstein

14:30 – 15:00	<b>M. Hanfland</b> (invited), ESRF, Grenoble - <i>Structural studies at extreme pressures</i>
15:00 – 15:30	<b>J.S. Tse</b> (invited), University of Saskatchewan - <i>Superconductivity in high pressure SiH<sub>4</sub> and SnH<sub>4</sub></i>
15:30 – 15:45	<b>Y. Mori</b> , Okayama University of Science - <i>Pressure-induced phase transition of Co-doped ZnO</i>
15:45 – 16:00	<b>J.P. Rino</b> , Federal University of São Carlos - <i>Structural Phase Transformations in InP under Pressure: An ab initio and Molecular-Dynamics Study</i>

### Poster Session II

16:30 – 19:00 **Poster 45 to 88** (hallway outside Ágora room)

## Wednesday, August 2, 2006

**Coffee:** 8:30 – 9:00

### Session 8: Correlated Systems

**Chair: Alfredo Segura**

9:00 – 9:30	<b>E.M. Dizhur</b> (invited), Institute for High Pressure Physics, Troitsk - <i>Pressure-induced Metal-Insulator Transition of 2D Electron Gas in <math>\delta</math>-doped GaAs</i>
9:30 – 10:00	<b>V.S. Filinov</b> (invited), Institute for High Energy Density, Moscow - <i>Coulomb crystal and quantum melting in electron-hole plasmas of semiconductors under high pressure</i>

### Session 9: Carbon Related Materials

**Chair: Peter Yu**

10:00 – 10:30	<b>J. Arvanitidis</b> (invited), Aristotle University of Thessaloniki - <i>High pressure Raman studies of double wall carbon nanotubes</i>
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**Coffee Break:** 10:30 – 11:00

11:00 – 11:15	<b>J. González</b> , University of Los Andes, Mérida - <i>Pressure dependence of Raman modes in DWCNT filled with 1D nanocrystalline <math>PbI_2</math> semiconductor</i>
11:15 – 11:30	<b>S.B. Fagan</b> , UNIFRA, Santa María - <i>Ab initio study of double-wall carbon nanotubes under uniaxial pressure</i>
11:30 – 11:45	<b>J.E. Proctor</b> , University of Manchester - <i>High pressure Raman spectroscopy of single-walled carbon nanotubes: Effect of chemical environment on individual nanotubes and the nanotube bundle</i>
11:45 – 12:15	<b>V. Lemos</b> (invited), Federal University of Ceará, Fortaleza - <i>Interaction of a methanol molecule with <math>C_{60}</math> under pressure</i>
12:15 – 12:30	<b>G.V. Tikhomirova</b> , Ural State University, Ekaterinburg - <i>Different conductive phases of <math>C_{60}</math> induced by high pressures up to 50 GPa</i>

**Lunch** 12:30 – 14:30

### Session 10: Spin & Magnetic Properties

**Chair: Vladimir Laukhin**

14:30 – 15:00	<b>G. Remenyi</b> (invited), CRTBT-CNRS, Grenoble - <i>Magnetoelastic effects in colossal magnetoresistance <math>Pr_{1-x}Ca_xMnO_3</math> compounds</i>
15:00 – 15:30	<b>G. Wortmann</b> (invited), University of Paderborn - <i>Magnetic Properties of CsCl-type Eu-Monochalcogenides at Extreme Pressures</i>

### Session 11: New Techniques

**Chair: Alain Polian**

15:30 – 16:00	<b>T. Mishina</b> (invited), Hokkaido University, Sapporo - <i>Femtosecond pump &amp; probe spectroscopy in Bi under pressure</i>
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**Conference Banquet** 20:00 – 24:00 at the Magnum – 7 Portes – (Salvador Espriu 73-75, 08005 Barcelona)

**Thursday, August 3, 2006**

**Coffee:** 8:30 – 9:00

**Session 11: New Techniques (continued) Chair: Alain Polian**

9:00 – 9:30	<b>I.F. Silvera</b> (invited), Harvard University, Cambridge - <i>Calibration of the Ruby Pressure Scale to 150 GPa</i>
9:30 – 10:00	<b>M. Gauthier</b> (invited), Pierre et Marie Curie University, Paris - <i>Ultrasonic measurements under high pressure</i>
10:00 – 10:15	<b>M.S. Kagan</b> , Institute of Radio Engineering & Electronics, Moscow - <i>Carrier Injection as a Cause of THz Lasing Excitation in SiGe/Si QW Structures</i>

**Session 12: Structural Phase Transitions II Chair: Niels Christensen**

10:15 – 10:30	<b>K. Matsuishi</b> , University of Tsukuba, Ibaraki - <i>Hydrostatic pressure effects on structural and electronic properties of inorganic-organic perovskite semiconductor (CH<sub>3</sub>NH<sub>3</sub>)PbBr<sub>3</sub></i>
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**Coffee Break:** 10:30 – 11:00

11:00 – 11:30	<b>F.J. Manjón</b> (invited), Universidad Politécnica de Valencia - <i>Crystal stability and pressure-induced phase transitions in scheelite CaWO<sub>4</sub> and isostructural AWO<sub>4</sub> (A = Sr, Ba, Pb, Eu) binary oxides: A Review of recent ADXRD, XANES, Raman and ab-initio studies</i>
11:30 – 11:45	<b>K. Shirai</b> , Osaka University - <i>High-pressure properties and phase diagram of boron</i>
11:45 – 12:00	<b>A. Polian</b> , IMPMC, Paris - <i>α-boron under high pressure: new results</i>

**Closing Session**

12:00 – 12:30	<b>M. Cardona</b> , MPI für Festkörperforschung, Stuttgart
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