

**University of Vigo and JSPS  
Core-to-Core Program Joint Seminar**

**"Atomically Controlled Processing for Ultralarge Scale Integration"**

**Vigo, September 4<sup>th</sup> - 6<sup>th</sup> , 2012**

**Time schedule**

**Tuesday, September 4<sup>th</sup>**

10:20 h

Meeting point: "Aula de Grados" at the Industrial Engineering School (EEI), Campus Marcosende

10:30 h

**Welcome and opening** chaired by *M.Fernández (University of Vigo)*

*Manuel Fernández (Vice-rector for International Relations), Juan Pou (Director of the E.E.I.), Junichi Murota (Network Leader), Stefano Chiussi (Local Organizer)*

**General introductions**

*Chair: S.Chiussi (University of Vigo)*

10:45 h

**"General information on research lines of possible interest at the Laser group of the University of Vigo"**

Stefano Chiussi, Pio González, Julia Serra

*New Material Group, University of Vigo (Spain)*

11:00 h

**"Laser processing and synthesis of materials at micro- and nanoscale"**

Juan Pou, Fernando Lusquiños, Felix Quintero, Mohammed Boutinguiza, Rafael Comesaña, Antonio Riveiro, Jesus del Val

*Industrial Applications of Lasers Group, University of Vigo (Spain)*

11:30 h

**Guided visit to the Laboratories of the Laser group**

- **New Materials Group**
- **Industrial Applications of Lasers Group**
- **Optical Metrology Group**

13:30 h

**Lunch: Light buffet (Pinchos) at EEI (sponsored)**

15: 00 h

**Guided visit to the Central Research facilities (CACTI) and the Campus Marcosende**

18:00 h

**Free time for sightseeing (Sunset in Vigo is at about 21:00h)**

Wednesday, September 5<sup>th</sup>

9:50 h

Meeting point: "Aula de Grados" at the Industrial Engineering School (EEI), Campus Marcosende

*Presenting authors are requested to upload their final presentation on our computer and to thoroughly check every aspect of their presentation. Confidentiality is guaranteed and presentations will be erased from the computer after the JSPS-Seminar.*

**Si and SiGe based materials**

*Chair: O.Nakatsuka (Nagoya University) & D.Buca (FZ Jülich)*

10:00 h

**"Atomically Controlled Formation of Strained Si<sub>1-x</sub>Ge<sub>x</sub>/Si Quantum Heterostructure for Room-Temperature Resonant Tunneling Diode"**

Masao Sakuraba, Junichi Murota  
*Tohoku University (Japan)*

10:25 h

**"Charge Storage and Optoelectronic Response of Silicide-Nanodots/Si-Quantum-Dots Hybrid-Floating-Gate MOS Devices"**

Seiichi Miyazaki<sup>1</sup>, Katsunori Makihara<sup>1</sup>, Mitsuhsa Ikeda<sup>2</sup>  
<sup>1</sup>Nagoya University, <sup>2</sup>Hiroshima University (Japan)

10:50 h

**"Optical studies of Ge/Si based heterostructures and self interstitials related defects in Si"**

Joaquim Leitao  
*Departamento de Física & I3N, Universidade de Aveiro (Portugal)*

11:15 h

**"Low threading dislocation density Ge growth and heavy phosphorus doping in Ge"**

Yuji Yamamoto<sup>1</sup>, Peter Zaumseil<sup>1</sup>, Grzegorz Kozłowski<sup>1</sup>, Rainer Kurps<sup>1</sup>, Bernd Tillack<sup>1,2</sup>  
<sup>1</sup>IHP, Frankfurt an der Oder (Germany)  
<sup>2</sup>Technische Universität Berlin (Germany)

11:40 h **Coffee break (sponsored)**

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**SiGeSn based and other materials**

*Chair: M.Sakuraba (Tohoku University) & J.Leitao (University of Aveiro)*

12:15 h

**"Epitaxial Growth and Characterizations of GeSn and GeSiSn Thin Layers for Nanoelectronic and Optoelectronic Applications"**

Osamu Nakatsuka, Noriyuki Taoka, Mitsuo Sakashita, Wakana Takeuchi, Shigeaki Zaima  
*Nagoya University (Japan)*

12:40 h

**"Epitaxial Growth of Ge<sub>1-x</sub>Sn<sub>x</sub> with high Sn content by Reduced Pressure CVD"**

Stephan Wirths, Dan Buca, Andreas T. Tiedemann, Bernd Holländer, Patric Bernardy, Toma Stoica, Detlev Grützmacher, Sigfried Mantl  
*Forschungszentrum Jülich (Germany)*

13:05 h

**"FIB preparation and TEM characterization of Ge/Sn based alloys"**

Alessandro Benedetti\*, Stefan Stefanov, Julia Serra, Pio González, Stefano Chiussi,  
*New Materials Group, \*CACTI, University of Vigo (Spain)*

13:30 h

**“Laser processing of heteroepitaxial GeSn and SiGeSn alloys”**

Stefan Stefanov, Carlos Conde, Carmen Serra\*, Alessandro Benedetti\*, Stefano Chiussi  
*New Materials Group, \*CACTI, University of Vigo (Spain)*

13:55 h **LUNCH, Tapas Buffet at E.E.I. Cafeteria (sponsored)**

**Modelling, applications, and other materials**

*Chair: S.Miyazaki (Nagoya University) & J.Serra (University of Vigo) & Y.Kimura (Tohoku University)*

15:00 h

**“Fabrication of Titanium Oxide Nanotube Micro Gas Sensors by Anodization”**

Yasuo Kimura, Ryota Kojima, Shota Kimura, Michio Niwano  
*Tohoku University (Japan)*

15:25 h

**“Application of titanium oxide nanotube films to solar cells”**

Michio Niwano, Ryota Kojima, Ma Teng, and Yasuo Kimura  
*Tohoku University (Japan)*

15:50 h

**“Dynamic Characteristics of Neuron Models and Microchip Integration of Active Neural Networks”**

Koji Nakajima  
*Tohoku University (Japan)*

16:15 h **Coffee break (sponsored)**

16:30 h

**“Ionic Liquid-Gated Organic Field-Effect Transistors”**

Shohei Iino, Yasuo Kimura and Michio Niwano  
*Tohoku University (Japan)*

16:55 h

**“UV Excimer laser treatment of SiGe and SiGeSn: Numerical modeling through finite elements methods”**

Stefan Stefanov, Carlos Conde, Elena Martín, Julia Serra, Pio González, Stefano Chiussi  
*New Materials Group, University of Vigo (Spain)*

17:20 h

**“Ion doped apatite coatings by laser ablation”**

Cosme Rodríguez-Valencia, Miriam López-Alvarez, Diego Cordero, Helio Aguiar, Julia Serra, Stefano Chiussi, Pío González  
*New Materials Group, University of Vigo (Spain)*

17:45 h

**“Innovative porous SiC ceramics from natural precursors”**

Miriam López-Alvarez, Cosme Rodríguez-Valencia, Stefano Chiussi, Julia Serra, Pío González  
*New Materials Group, University of Vigo (Spain)*

18:10 h

**Closing remarks of seminar session**

21:30 h - open end

**Dinner at typical local Tapas restaurant**

**Thursday, September 6<sup>th</sup>**

Meeting point: Industrial Engineering School (EEI) or City Center (to be determined)

10:00 h - 15:00 h

**Bilateral Meetings of participants for evaluating existing co-operations and planning future projects and agreements.**