

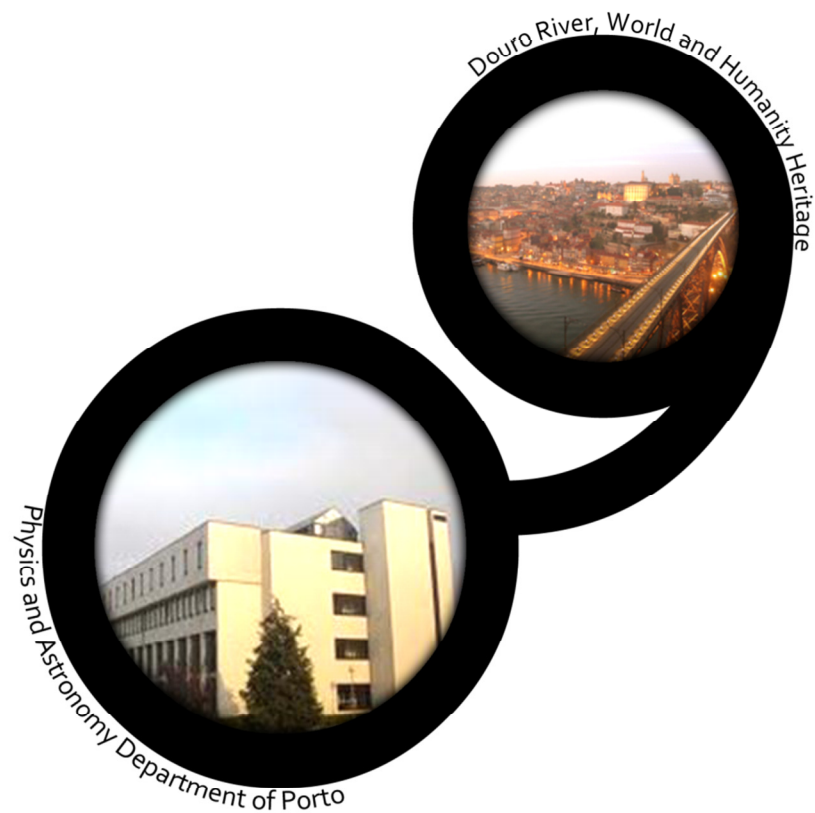
**U. PORTO**

**FC** FACULDADE DE CIÊNCIAS  
UNIVERSIDADE DO PORTO

**EDNANO<sup>9</sup>**

**9th International Workshop  
on Electrodeposited Nanostructures**

**PROGRAM**



**8-10<sup>th</sup> November 2012, Porto, Portugal**



## Thursday, 8<sup>th</sup> November

8:30 - 9:00 Registration

9:00 - 9:10 Welcome to Porto

9:10 - 10:50 **Session I: Nanowires**

9:10 - 9:30 **Electrochemical Deposition of Co(Cu)/Cu Multilayered Nanowires**

Fedor S. Fedorov, Jens Igolf Mönch, Chistine Mickel, Kristina Tschulik, Margitta Uhlemann, Annett Gebert, Jürgen Eckert

9:30 - 9:50 **Pulsed electrodeposition of metals into porous anodic alumina and study of obtained metallic nanowires properties**

Anastasia Zheleznyakova, Yulia Nazarkina, Alexey Belov

9:50 - 10:10 **Enhancement of anomalous codeposition in the synthesis of Fe-Ni alloys in nanopores**

Angela Llavona, Lucas Pérez, M. Carmen Sánchez, Víctor de Manuel

10:10 - 10:30 **A new method for the preparation of a single metallic nanowire by electrodeposition**

H. Chiriac, O.G. Dragos-Pinzaru, G. Stoian, T.A. Ovari, and N. Lupu

10:50 - 11:50 Coffee break and **Poster Session**

11:50 - 12:30 Visit to the laboratories

12:30 - 14:00 Lunch and **Poster Session**

14:00 **Session II: Magnetic and optical properties of Electrodeposited Nanostructures**

14:00 - 14:20 **Electrodeposition and magnetic properties of Ni and Co nanotubes in nanoporous alumina templates**

Mariana P. Proença, Célia T. Sousa, Juan Escrig, João Ventura, Manuel Vázquez, João P. Araújo

14:20 - 14:40 **Probing arrays of magnetic nanowires and nanotubes with ferromagnetic resonance**

Gleb Kakazei, Celia Sousa, Mariana Proença, Arlete Apolinario, Joao Ventura, Sergiy Bunyaev, Yuriy Pogorelov, Diana Leitao, Andrey Timopheev, Nikolai Sobolev, Anastasiia Moskaltsova, Manuel Vazquez, Joao Pedro Araujo

14:40 - 15:00 **Fabrication of amorphous FeNiP nanowire arrays and the change of their properties regarding annealing**

Nina Winkler, Yong Lei, Martin Peterlechner and Gerhard Wilde



15:00 - 15:20 **Magnetization reversal behavior in electrodeposited ferromagnetic Co-Pt-based nanotubes and nanowires**

Kristina Žužek Rožman, Muhammad Shahid Arshad, Fabian Rhein, Ulrike Wolff, Volker Neu, Spomenka Kobe

15:20 - 15:40 **Birefringence swap at the transition to hyperbolic dispersion in metamaterials**

L. M. Custodio, J. M. Teixeira, C. T. Sousa, J. Ventura, P. V. S. Marques, and J. P. Araujo.

15:40 - 16:00 Coffee break and **Poster Session**

16:00 **Session III Electrochemical surface science and Non-Metallic Electrodeposits**

16:00 – 16:20 **Deposition of Pt onto Pd thin films via Surface Limited Redox Replacements with Hydrogen**

Ben Rawlings and Natasa Vasiljevic

16:20 - 16:40 **Underpotential deposition (UPD) of Fe, Co and Ni on Gold and Platinum Electrodes in DMSO**

Alexander Vaskevich and Israel Rubinstein

16:40 - 17:00 **Powerful Pulse Discharge Oxidation as a Novel Method of Thin Oxide Film Preparation**

D. Lisenkov, A. N. Salak, S. K. Poznyak, M. L. Zheludkevich, M. G. S. Ferreira

17:00 - 17:20 **Activity and durability of Pt films during Formic acid oxidation**

J. Nutariya, M. Fayette, N. Dimitrov and N. Vasiljevic

17.20 **Session IV Electrodeposition Processes**

17:20 - 17:40 **Near-substrate composition depth profile of d.c.-plated and pulse-plated Fe-Ni alloys**

László Péter, Katalin Neuróhr, Attila Csik, Kálmán Vad and Imre Bakonyi

17:40 - 18:00 **Soft gold coatings: influence of additives and pulse plating**

Luca Magagnin, Pietro Luigi Cavallotti

18:00 - 18:20 **Electrodeposition of CoFe in the presence of p-hydroxycoumaric acid (p-HCA): Incorporation of p-HCA and oxygen in the deposit**

Venkatram Venkatasamy, Ibro Tabakovic, Steve Riemer, Jie Gong, Steve Axdal and Michael Kautzky

20:30 Conference dinner at “Casa da Música”



**Friday, 9<sup>th</sup> November**

9:00 **Session V Electrochemical Formation of Nanostructures**

9:00 - 9:20 **Broad Self-Ordering Regime in Hard-Anodized Nanoporous Alumina**

V. Vega, J. García, V.M. Prida, J.M. Montero-Moreno, J. Bachmann, K. Nielsch

9:20 - 9:40 **Anodic fast-growth of highly ordered hexagonal arrays of TiO<sub>2</sub> nanotubes by a single anodization step**

A. Apolinário, C.T. Sousa, J. Ventura, J.D. Costa, D.C. Leitão, J.M. Moreira, J. B. Sousa, A.M. Mendes and J. P Araújo

9:40 - 10:00 **Photoelectrochemical solar cells from TiO<sub>2</sub> nanotubes modified by electrodeposited Cu<sub>2</sub>O and Fe<sub>2</sub>O<sub>3</sub>**

Lok-kun Tsui, Giovanni Zangari

10:00 - 10:20 **Fabrication of nanotube-based Dye Sensitized Solar Cells by potentiostatic anodization of Ti foils**

J. D. Costa, A. Apolinário, C. Sousa, J. Azevedo, J. Ventura and J.P. Araújo

10:20 - 10:40 **The European “Nanocoat” programme on alumina nanostructuring**

P. Négré, P. Benaben and M. Boudes

10:40 - 11:00 Coffee break and **Poster Session**

11:00 **Session VI New architectures of electrodeposited nanostructures**

11:00 - 11:20 **Precise control of branched nanowires growth by pulsed electrodeposition**

C. T. Sousa, A. Apolinario, D. C. Leitao, A. M. Pereira, J. Ventura and J. P. Araujo

11:20 - 11:40 **The collective behavior of nanowires: Synthesis of advanced network architectures with improved functional properties**

Markus Rauber, Falk Muench, Martin Hottes, Christian Stegmann, and Wolfgang Ensinger

11:40 - 12:00 **Growth mechanisms of functional nanowire based architectures**

Cédric Frantz, Jmil Elias, Hasegawa Madoka, Nicolas Stein, Johann Michler and Laetitia Philippe

12:00 - 12:20 **Enhancement of surface area in electrodeposited nanowires through porous anodic alumina tuning**

J. Azevedo, C.T. Sousa, J. Ventura, A. Apolinário, A.M. Mendes and J.P. Araújo



12:20 - 12:40 **Lithographically defined Nanochannels aligned In-Plane for Electrochemical Synthesis of Nanowires**

Josep M Montero Moreno, Martin Waleczek, Wehid Rahimi and Kornelius Nielsch

12:40 - 14:00 Lunch and **Poster Session**

14:00 **Session VII Nanostructures for thermoelectrics applications**

14:00 - 14:20 **Electrodeposition of thermoelectric materials for 21st century applications**

Marisol Martín-González, Jaima Martín, Begon Abad, Marta Rull Bravo, Miguel Munoz-Rojo, Cristina V. Manzano and Olga Caballero-Calero.

14:20 - 14:40 **Optimizations of Pulsed Plated p and n-type Bi<sub>2</sub>Te<sub>3</sub>-Based Ternary Compounds by Annealing in Different Ambient Atmospheres**

Christian Schumacher, Klaus G. Reinsberg, Raimar Rostek, Lewis Akinsinde, Svenja baessler, Sebastian Zastrow, Geert Rampelberg, Peter Woias, Christophe Detavernier, José A. C. Broekaert, Julien Bachmann, Kornelius Nielsch

14:40 - 15:00 **ZnO films by electrodeposition: growth and optical and thermoelectric properties**

C.V. Manzano, O. Caballero-Calero, B. Abad, P. Díaz-Chao, S. Hormeño, M. Penedo, B. Alén, M. Luna, M. S. Martín-González

15:00 - 15:20 **Influence of different parameters on the electrodeposition of Bismuth Telluride films and nano-wires for thermoelectric applications**

O. Caballero-Calero, B. Abad, P. Díaz-Chao, M. Muñoz Rojo, J. Martín, M. S. Martín-González

15:20 **Session VIII Magneto-electrodeposition**

15:20 - 15:40 **Inverse structuring of electrodeposits in applied magnetic field gradients**

Tschulik, Kristina; Uhlemann, Margitta; Mutschke Gerd; Gebert, Annett; Schultz, Ludwig

15:40 - 16:00 **Analyzing the mechanism of magnetic gradient field based electrochemical structuring by in situ velocity measurements**

Kristina Tschulik, Christian Cierpka, Gerd Mutschke, Margitta Uhlemann, Annett Gebert, Jürgen Eckert

16:00 - 16:10 Coffee break



16:10 **Session IX Nanoparticles and thin films**

16:10 - 16:30 **Surface and microstructural characterization of electrodeposited Cu films**

Lihu Liu, Peter Heard, Tom Scott and Walther Schwarzacher

16:30 - 16:50 **Electrophoretic Deposition of CoFe<sub>2</sub>O<sub>4</sub> nanograins dispersed in a BaTiO<sub>3</sub> matrix**

J.G. Barbosa, C.Moura, M.R. Pereira, I.T.Gomes, J.A.Mendes, B.G.Almeida

16:50 - 17:10 **Electrodeposition of zinc nanoparticles in aluminium oxide membrane from ionic liquids based on choline chloride**

M. Starykevich, Y. Nazarkina, A.D. Lisenkov, M.L. Zheludkevich, M.G.S. Ferreira

17:10 - 17:30 **Templated electrodeposition of nanocubes**

Wouter Maijenburg, Azusa N. Hattori, Hidekazu Tanaka, and Johan E. ten Elshof

17.30-18.00 Closing Remarks

**Saturday, 10<sup>th</sup> November**

09:00 Sightseeing excursion

**1. Electrodeposited Bi thin films on GaAs substrates**

A. Prados Díaz, R. Ranchal and L. Perez

**2. Optimization of e-beam exposure parameters for the electrodeposition of magnetic nanostructures on rigid substrates**

Ana V. Silva, Diana C. Leitao, Susana Cardoso, Paulo P. Freitas

**3. Ultrathin copper/cobalt nanotubes prepared by codeposition from ammonia-sulfate complexes in ion track etched polycarbonate templates**

Neetzel Cornelia and Ensinger Wolfgang

**4. Transport Properties of Magnetic Ni and Ni-alloy Nanowire Arrays**

Diana C. Leitao, Laura G. Vivas, Celia T. Sousa, Andre M. Pereira, Manuel Vazquez, Joao Ventura; Joao P. Araujo

**5. Electrodeposition of Fe<sub>80</sub>Ga<sub>20</sub>: from thin films to nanowires**

Diana Iselt, Kristina Tschulik, Alexander Funk, Steffen Oswald, Darius Pohl, Ludwig Schultz and Heike Schlörb

**6. Fabrication of segmented Au-Ag nanowires and nanogaps by electrodeposition in etched ion-track membranes**

I. Alber <sup>1</sup>, R. Neumann <sup>1</sup>, M.E. Toimil-Molares

**7. Electrodeposition of Bismuth Antimony Nanowires in Etched Ion-Track Membranes with Parallel and Interconnected Channels**

S. Mueller <sup>1</sup>, M. Wagner <sup>1</sup>, M. Cassinelli <sup>1</sup>, C. Trautmann <sup>1,2</sup>, M.E. Toimil-Molares

**8. Synchrotron radiation studies on magnetic Fe-oxide nanowires electrodeposited into porous alumina templates**

João C.A. M. Azevedo, Maria Paz Fernandez-Garcia, Célia T. Sousa, José Miguel Teixeira, A. Apolinario, Giuliana Aquilanti, Luca Olivi, Adélio Mendes, João Pedro Araújo

**9. Electrodeposition of nanowire arrays for accelerometers and their mechanical properties**

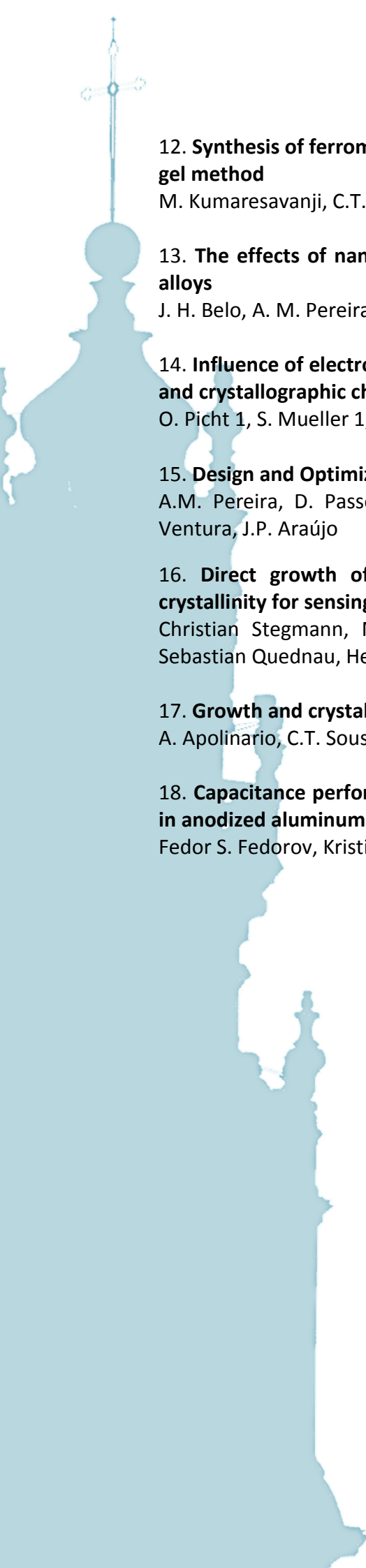
Martin Hottes, Markus Rauber, Christian Stegmann, Florian Dassinger, Helmut F. Schlaak, Christina Trautmann and Wolfgang Ensinger

**10. Electrodeposition and electrocatalytic properties of Pt-Au overlayers**

Michael Mercer, David Fermín, Daniela Plana and Natasa Vasiljevic

**11. Electrochemical study and comparison of kinetics of iron-palladium alloy electrodeposition at flat electrode and in porous alumina template**

Nina Kostevšek, Kristina Žužek Rožman, Boris Pihlar, Spomenka Kobe



**12. Synthesis of ferromagnetic La<sub>2</sub>/3Ca<sub>1</sub>/3MnO<sub>3</sub> nanotubes by template assisted sol-gel method**

M. Kumaresavanji, C.T. Sousa, Armandina M. Lopes and J.P. Araujo

**13. The effects of nanostructuring on the Magnetostrictive Effect of the R<sub>5</sub>(Si,Ge)<sub>4</sub> alloys**

J. H. Belo, A. M. Pereira, L. Morellon, J. P. Araújo

**14. Influence of electrolyte composition and deposition potential on the composition and crystallographic characteristics of Bi<sub>2</sub>Te<sub>2</sub> nanowires**

O. Picht <sup>1</sup>, S. Mueller <sup>1</sup>, M.E. Toimil-Molares

**15. Design and Optimization of Flexible Thermoelectric Micro/Nanodevices**

A.M. Pereira, D. Passos, R.F.A. Silva, M. Rosmaninho, O. Moutinho, C.T. Sousa, J. Ventura, J.P. Araújo

**16. Direct growth of vertically integrated platinum nanowires with controlled crystallinity for sensing devices**

Christian Stegmann, Markus Rauber, Martin Hottes, Falk Münch, Joachim Brötz, Sebastian Quednau, Helmut Schlaak, and Wolfgang Ensinger

**17. Growth and crystallization of HfO<sub>2</sub> nanoporous templates**

A. Apolinario, C.T. Sousa, A.M.L. Lopes, G.N.Oliveira, J.P. Araújo

**18. Capacitance performance of cobalt hydroxide/oxide nanowires electrodeposited in anodized aluminum oxide templates**

Fedor S. Fedorov, Kristina Tschulik, Margitta Uhlemann, Annett Gebert, Jürgen Eckert