

**INDICATORII DE PERFORMANȚĂ OBȚINUȚI ÎN PERIOADA  
AFERENTĂ RAPORTĂRII ETAPEI II: 01/12/2012 – 30/11/2013  
PROIECT DE CERCETARE IFA-CEA C2-02 / 01-03-2012**  
*NanoSurfCorr*

**Teze de licență / masterat / doctorat**

**1 Teză de doctorat finalizată:**

**1. Dr. ing. Adina Ionica PAVLOV**, Coordonator științific – prof. univ. dr. Lidia BENEÀ. Titlul tezei de doctorat: *Influența tratamentelor electrochimice a suprafeteelor (straturi nanocompozite în matrice de nichel) asupra rezistenței la coroziune și uzură*, data susținerii publice 5 decembrie 2012.



**1 Lucrare (Teză) de disertație:**

**1. Master student: Ing. Ortanța ROMAN**, Coordonator științific – prof. univ. dr. Lidia BENEÀ. Titlul tezei de disertație: *Influența stării suprafetei și a pH-ului mediului asupra coroziunii aliajului Ti-6Al-4V*.

**2 Lucrări (Teze) de licență:**

**1. Student: Bogdan-Sorin BAŞA**, Coordonator științific – prof. univ. dr. Lidia BENEÀ. Titlul tezei de licență: *Cresterea rezistenței la coroziune și uzură a echipamentelor din sistemele de purificare a apei prin modificarea suprafetei materialelor*.



**2.** Student: **Andrei Mihai CHIRIAC**, Coordonator științific – prof. univ. dr. Lidia BENEÀ. Titlul tezei de licență: *Cercetări privind reducerea fenomenelor de coroziune și uzură în sistemele de apă prin electrodepuneri nanocompozite*.



### Publicații în reviste indexate ISI

**1.** Adina Ionica PAVLOV, Lidia BENEÀ, Jean–Pierre CELIS, Luis VAZQUEZ, *Influence of nano-TiO<sub>2</sub> co-deposition on the morphology, microtopography and crystallinity of Ni/nano-TiO<sub>2</sub> electrosynthesized nanocomposite coatings*, Digest Journal of Nanomaterials and Biostructures, 8, 1043 – 1050, (2013).

ISSN 1842-3582.

[http://www.chalcogen.ro/1043\\_Benea.pdf](http://www.chalcogen.ro/1043_Benea.pdf)

**Impact Factor** = 1.123.

**2.** Lidia BENEÀ, Adina Ioana PAVLOV, *Ni-TiO<sub>2</sub> nanocomposite coatings as cathode material for hydrogen evolution reaction*, Optoelectronics and Advanced Materials – Rapid Communications, 7, 895 – 899, (2013).

ISSN 1842-6573

<http://oam-rc.inoe.ro/index.php?option=magazine&op=view&idu=2198&catid=81>

**Impact Factor**= 0.563.

### Publicații în reviste incluse în alte baze de date internaționale recunoscute (BDI)

**1.** Eliza MARDARE, Lidia BENEÀ, Iulian BOUNEGRU, *Electrochemical Modifications of Titanium And Titanium Alloys Surface For Biomedical Applications – A Review*, The Annals of “Dunarea de Jos” University of Galati, Fascicle IX. Metallurgy and Materials Science, No. 1 pg. 68 – 78, 2013.

ISSN 1453 – 083X.

<http://www.imsi.ugal.ro/Anale/2013-Annals-vol-1.pdf>

### Participări la conferințe internaționale

O lucrare prezentată la: **IVC-19 / ICN+T 2013 and partner conferences (19th International Vacuum Congress (IVC-19), International Conference on Nanoscience and Technology (ICN+T 2013), 15th International Conference on Solid Surfaces (ICSS-**

15), Innovations in Thin Film Processing and Characterisation (ITFPC 2013), Magnetron, Ion processing & Arc Technologies European Conference (MIATEC 2013), 19<sup>th</sup> International Colloquium on Plasma Processes (CIP 2013), Reactive Sputter Deposition (RSD 2013)), Sesion: Nanostructured Protective Coatings (Joint with ITFPC 2013), 9 – 13 September 2013, Paris, Franța.

[http://www.ivc19.com/fileadmin/document/19th\\_International\\_Vacuum\\_Congress.pdf](http://www.ivc19.com/fileadmin/document/19th_International_Vacuum_Congress.pdf)

1. Oral presentation: Lidia BENEÀ, Olivier RAQUET, Nadège CARON, Pierre PONTHIAUX, Jean-Pierre CELIS, *Nanocomposite coatings for improving the corrosion and wear resistance of surfaces*, IVC-19 / ICN+T 2013 and partner conferences (19<sup>th</sup> International Vacuum Congress (IVC-19), International Conference on Nanoscience and Technology (ICN+T 2013), 15<sup>th</sup> International Conference on Solid Surfaces (ICSS-15), Innovations in Thin Film Processing and Characterisation (ITFPC 2013), Magnetron, Ion processing & Arc Technologies European Conference (MIATEC 2013), 19<sup>th</sup> International Colloquium on Plasma Processes (CIP 2013), Reactive Sputter Deposition (RSD 2013)), Sesion: Nanostructured Protective Coatings (Joint with ITFPC 2013), 9 – 13 September 2013, Paris, Franța.

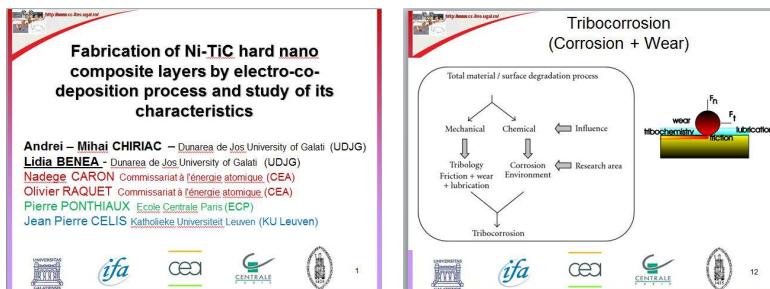
[http://apps.key4events.com/key4register/images/client/164/files/Abstracts\\_IVC19.pdf](http://apps.key4events.com/key4register/images/client/164/files/Abstracts_IVC19.pdf)

Două lucrări prezentate la: First International Conference Danube – Black Sea – 3E – Energy, Environment & Efficiency (IWEEE 2013), Section II – Environmental issues in the Danube and Black Sea areas, multiple dimensions of water security and environmental risks, Dunărea de Jos University of Galați, 18 – 21 September 2013, Galați, România.

<http://www.iweee.ugal.ro/index.php/program>

1. Oral presentation: Andrei Mihai CHIRIAC, Lidia BENEÀ, Nadège CARON, Olivier RAQUET, Pierre PONTHIAUX, Jean- Pierre CELIS, *Fabrication of Ni-TiC Hard Nanocomposite Layers by Electro-co-deposition Process and Study of Its Characteristics*, First International Conference Danube – Black Sea – 3E – Energy, Environment & Efficiency (IWEEE 2013), Section II – Environmental issues in the Danube and Black Sea areas, multiple dimensions of water security and environmental risks, Dunărea de Jos University of Galați, 18 – 21 September 2013, Galați, România.

<http://www.iweee.ugal.ro/index.php/program>



2. Oral presentation: Sorin-Bogdan BAŞA, Lidia BENEÀ, Nadège CARON, Olivier RAQUET, Pierre PONTHIAUX, Jean-Pierre CELIS, *Electroplating of Ni-WC Nanocomposite Coatings for Improving Corrosion and Wear Resistance of Steel Surfaces*,

First International Conference Danube – Black Sea – 3E – Energy, Environment & Efficiency (IWEEE 2013), Section II – Environmental issues in the Danube and Black Sea areas, multiple dimensions of water security and environmental risks, Dunărea de Jos University of Galați, 18 – 21 September 2013, Galați, România.

<http://www.iweee.ugal.ro/index.php/program>

**Project C2-02**

**Electroplating of Ni-WC nanocomposite coatings for improving the corrosion and wear resistance of steel surfaces**

Eliza DANAILA - Dunarea de Jos University of Galati (UDJG)  
Sorin-Bogdan BASA - Dunarea de Jos University of Galati (UDJG)  
Lidia BENEÀ - Dunarea de Jos University of Galati (UDJG)  
Nadège CARON - Commissariat à l'énergie atomique (CEA)  
Olivier RAQUET - Commissariat à l'énergie atomique (CEA)  
Pierre PONTHIAUX - Ecole Centrale Paris (ECP)  
Jean Pierre CELIS - Katholieke Universiteit Leuven (KU Leuven)

**Methods and techniques for *in situ* measurements**

Set-up used at the behavior investigation of electrodeposited layers to dry and wet friction wear  
Preparation of the solution that simulates the corrosive aqueous environment ( $H_3BO_3$ , LiOH).  
Setup used at the investigation of the tribocorrosion behaviour of electrodeposited layers

Patru lucrări prezentate la: **The Second International Conference of Young Researchers - New trends in environmental and materials engineering (TEME), Faculty of Materials and Environmental Engineering, Dunărea de Jos University of Galați, 28 – 30 October 2013, Galați, Romania.**

<http://www.fimm.ugal.ro/teme/>

**1. Oral presentation: Lidia BENEÀ, Recent research and development in electrodeposition of nanocomposite layers and nanostructures,** The Second International Conference of Young Researchers - *New trends in environmental and materials engineering* (TEME), Faculty of Materials and Environmental Engineering, Dunărea de Jos University of Galați, 28 – 30 October 2013, Galați, Romania.

<http://www.fimm.ugal.ro/teme/>

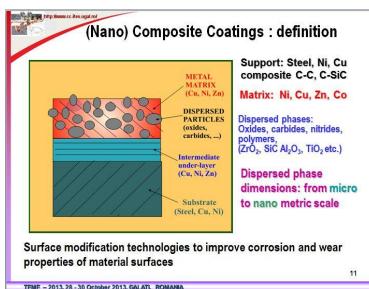
**RECENT RESEARCH AND DEVELOPMENT IN ELECTRODEPOSITION OF NANOCOMPOSITE LAYERS AND NANOSTRUCTURES**

Lidia BENEÀ

Research (Competences) Centre: Interfaces-Tribocorrosion and Electrochemical Systems (CC-ITES), Faculty of Materials and Environmental Engineering.

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e-mail: [Lidia.Benea@ugal.ro](mailto:Lidia.Benea@ugal.ro) , [lidiabd@yahoo.com](mailto:lidiabd@yahoo.com)



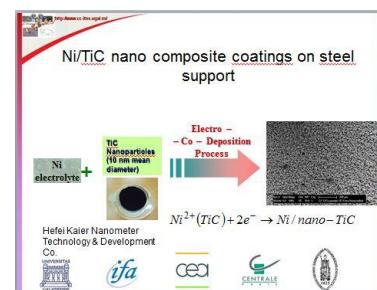
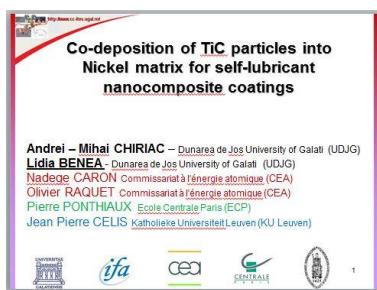
**2. Oral presentation: Sorin Bogdan BAŞA, Lidia BENEÀ, Nadège CARON, Olivier RAQUET, Pierre PONTHIAUX, Jean-Pierre CELIS, Electrochemical synthesis and characterization of Ni/WC nanocomposite layers,** The Second International Conference of

Young Researchers - *New trends in environmental and materials engineering* (TEME), Faculty of Materials and Environmental Engineering, Dunărea de Jos University of Galați, 28 – 30 October 2013, Galați, Romania.  
<http://www.fimm.ugal.ro/teme/>



**3. Oral presentation:** Andrei Mihai CHIRIAC, Lidia BENEÀ, Nadège CARON, Olivier RAQUET, Pierre PONTIAUX, Jean-Pierre CELIS, *Codeposition of TiC particles into nickel matrix for self-lubricant nanocomposite coatings*, The Second International Conference of Young Researchers - *New trends in environmental and materials engineering* (TEME), Faculty of Materials and Environmental Engineering, Dunărea de Jos University of Galați, 28 – 30 October 2013, Galați, Romania.

<http://www.fimm.ugal.ro/teme/>



**4. Oral presentation:** Lidia BENEÀ, Adina PAVLOV, Eliza DĂNĂILĂ, Nadège CARON, Olivier RAQUET, *Synthesis of nanostructured Ni-TiO<sub>2</sub> layers and their effective electrocatalytic properties*, The Second International Conference of Young Researchers - *New trends in environmental and materials engineering* (TEME), Faculty of Materials and Environmental Engineering, Dunărea de Jos University of Galați, 28 – 30 October 2013, Galați, Romania.

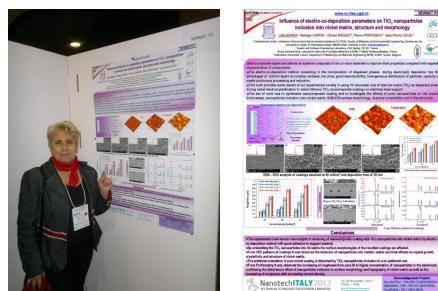
<http://www.fimm.ugal.ro/teme/>



O lucrare prezentată la: **International conference NanotechITALY 2013 – Key enabling technologies for responsible innovation, Session New Materials and Processes - Manufacturing and Nanofabrication, 27 – 29 November 2013, Venice, Italy.**  
<http://2013.nanotechitaly.it/>

1. Poster presentation: **Lidia BENEÀ**, Nadège CARON, Olivier RAQUET, Pierre PONTHIAUX, Jean-Pierre CELIS, *Influence of electro-co-deposition parameters on TiO<sub>2</sub> nanoparticles inclusion into nickel matrix, structure and morphology*, International conference NanotechITALY 2013 – Key enabling technologies for responsible innovation, Session New Materials and Processes - Manufacturing and Nanofabrication, Poster ID: NEWMAT\_P5, 27 – 29 November 2013, Venice, Italy.

<http://2013.nanotechitaly.it/>



### Participări la conferințe naționale

Șase lucrări prezentate la: **Scientific Conference of Doctoral Schools from “Dunărea de Jos” University of Galati – First Edition, Section 3 – Nanotechnologies and Functional Materials, 16 – 17 Mai 2013, Galați, România.**

<http://www.cssd-udgj.ugal.ro/index.php?edition=2013&lang=ro>

1. Invited conference: **Lidia BENEÀ**, *I.3.1. – Electrochemical surface modifications and characterization methods – a promising avenue for functional materials*, Scientific Conference of Doctoral Schools from “Dunărea de Jos” University of Galati – First Edition, Section 3 – Nanotechnologies and Functional Materials, 16 – 17 Mai 2013, Galați, România, pg. 11 – 12 – Book of Abstracts.

<http://www.cssd-udgj.ugal.ro/index.php?edition=2013&lang=ro>

2. Oral presentation: **Iulian BOUNEGRU**, Lidia BENEÀ, Lilia ILIE, Geta CÂRÂC, Alexandru CHIRIAC, *P.O.3.3. - Advanced composite coatings for biomedical applications using electrodeposition of chitosan*, Scientific Conference of Doctoral Schools from

“Dunărea de Jos” University of Galati – First Edition, Section 3 – Nanotechnologies and Functional Materials, 16 – 17 Mai 2013, Galați, România, pg. 36 – 37 – Book of Abstracts.  
<http://www.cssd-udjg.ugal.ro/index.php?edition=2013&lang=ro>

3. Oral presentation: **Marilena MARDARE (PRALEA)**, Lidia BENEÀ, Lilia ILIE, **P.O.3.4. - Electro-co-deposition of UHMWPE biopolymer with cobalt to obtain functional coatings**, Scientific Conference of Doctoral Schools from “Dunărea de Jos” University of Galati – First Edition, Section 3 – Nanotechnologies and Functional Materials, 16 – 17 Mai 2013, Galați, România, pg. 37 – Book of Abstracts.

<http://www.cssd-udjg.ugal.ro/index.php?edition=2013&lang=ro>

4. Poster presentation: Adina PAVLOV, **Lidia BENEÀ**, Lilia ILIE, Jean - Pierre CELIS, **P.3.9. - Influence of TiO<sub>2</sub> nanoparticles on surface morphology and cristalinity of nickel electrodeposited nickel film**, Scientific Conference of Doctoral Schools from “Dunărea de Jos” University of Galati – First Edition, Section 3 – Nanotechnologies and Functional Materials, 16 – 17 Mai 2013, Galați, România, pg. 76-77- Book of Abstracts.

<http://www.cssd-udjg.ugal.ro/index.php?edition=2013&lang=ro>

5. Poster presentation: **Alina CIUBOTARIU**, Lidia BENEÀ, Pierre PONTHIAUX, Francois WENGER, **P.3.10. - Phenol – Formaldehyde Resin/Zn Composite Layers – A Way to Improve Corrosion Resistance of Zinc Electrodeposition**, Scientific Conference of Doctoral Schools from “Dunărea de Jos” University of Galati – First Edition, Section 3 – Nanotechnologies and Functional Materials, 16 – 17 Mai 2013, Galați, România, pg. 77 – 78 – Book of Abstracts.

<http://www.cssd-udjg.ugal.ro/index.php?edition=2013&lang=ro>

6. Poster presentation: Vlad-Gabriel VASILESCU, **Lidia BENEÀ**, Elisabeta VASILESCU, **P.3.11. - Influence of pH solution on corrosion behavior of cobalt-chromium alloy used in dentistry**, Scientific Conference of Doctoral Schools from “Dunărea de Jos” University of Galati – First Edition, Section 3 – Nanotechnologies and Functional Materials, 16 – 17 Mai 2013, Galați, România, pg. 78 – Book of Abstracts.

<http://www.cssd-udjg.ugal.ro/index.php?edition=2013&lang=ro>

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