6th KSS PROGRAMME

16.09.2013 Monday

8.00 – 10.00 Registration

(Building B8, AGH-University of Science and Technology in Krakow, Akademicka St.)

10.15. -10.45 Opening

(Building B8, AGH-University of Science and Technology in Krakow, Akademicka St.)

11.00 – 12.30 Plenary Session

Chairmen: J. Banaś, P.J. Kulesza

D. D. Macdonald, The Holy Grail: Toward a Single, Comprehensive Theoretical Basis for All Forms of Corrosion

Ph. Marcus, Passive Films on Metals and Alloys: Growth, Nanostructure, Local Electronic Properties and Localized Breakdown

Lunch 12.30 – 14.00 ("TAWO", Reymonta 13A St.)

Afternoon Session, 14.00 – 17.50

Chairmen: P. Marcus, G.T. Burstein

Electrochemical methods in corrosion science and material engineering (Invited Lecture)

1. W. Plieth, Modelling and Simulation of Electrochemical Processes
3. M. Kosmulski, Zeta potential in corrosion science

16.00 – 16.20 Coffee break

Welcome Party / Get together 19.00

(Building B8, AGH-University of Science and Technology in Krakow, Akademicka St.)
F. Scholz The Interaction of OH' Radicals with Metal Surfaces and with Molecular Layers on Metals

G.T. Burstein The Role of Temperature in Electrochemical and Corrosion Reactions: Cyclic Thermammetry

10:30 – 10.50 Coffee break

Morning Session, 10.50 -13.00

<table>
<thead>
<tr>
<th>Session III</th>
<th>Session IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrochemical methods in corrosion science and material engineering - Preparation and degradation of new materials for electrochemical science and technology</td>
<td>Corrosion, passivity and breakdown processes</td>
</tr>
</tbody>
</table>

Chairmen: V.K. Gupta, F.J. Vidal-Iglesias

Chairmen: W. Vonau, T. Zakroczymski

1. M. Danielewski, Material science impact on electrochemistry: the bi-velocity formulation of the Nernst-Planck-Poisson problem (Invited Lecture)
2. S. Drensler, Electrochemical processing of nanostructured materials using a Pourbaix diagram intersection approach
3. I. Saeki, Y. Toshima, Analysis of co-deposition of Cr2O3 in Zn at various pH using Guggelmi’s equation
4. Y. Toshima, I.Saeki, Effect of surface adsorbed Zn ion on the co-deposition of Al2O3 and Cr2O3 particles
5. R. Zerdoumi, K. Oulmi, A New Modified Ion ExchangeE Membrane without Polarization and Facilitation of Counter Ion Transfer under an Electrical Field

1. V. Vignal, H. Krawiec, S. Le Manchet, Passivity and pitting corrosion of duplex stainless steels: Role of the microstructure and long-term ageing (Invited Lecture)
2. N.Tsytantsar, V. Myrzak, P. Globa, A. Dikusar, Corrosion of metals electrodeposition under pulse modes in AAO templates
3. Z. Szklarz, M. Wrobel, H. Krawiec, The influence of crystallographic orientation of grains on corrosion behavior of aluminium in sodium chloride solution
5. U. Lelek-Borkowska, K. Banaś, J. Banaś, The effect of water on passivation and corrosion of titanium in CH3OH-LiClO4 solutions

Lunch 13.00 – 14.30 (“TAWO”, Rymona 13A Str.)

Afternoon Session, 14.30 -16.45

<table>
<thead>
<tr>
<th>Session V</th>
<th>Session VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation and degradation of new materials for electrochemical science and technology</td>
<td>Corrosion resistant alloys, surface modification</td>
</tr>
</tbody>
</table>

Chairmen: A.W. Hassel, W. Plieth

Chairmen: H. Bala, I. Fi-Kabalska

1. N. Tsytantsar, G. Kazniokatis, H. Philipson, J.-P. Celis, Co-W nanocrystalline electrodeposits as barrier for interconnections applications
2. M. Tatko, M. Mosialek, M. Dudek, G. Mordarski, E. Bielańska, J. Wojewoda-Budka, Composite cathode material Ag-BaO3Sr0.5CoOFe2O5 for solid oxide fuel cells
4. M.B. Dergacheva, K.A.Mit, K.A.Urazov, K.A.Maeva, Nanostructure of electrodeposited ZnS films
5. K. Mech, P. Zapitsinski, R. Kowalik, K. Fitzner, Synthesis of Co – Pd Alloys by Co-electroreduction of [CoCl2(H2O)6-x]2-x; x = 1, 2 and [PdCl2(H2O)4]2-; y = 3, 4 Complexes

1. S. Virtanen, Biodegradable Mg alloys: Corrosion, surface modification, and biocompatibility considerations (Invited Lecture)
2. B. Burnat, T. Blaszczuk, A. Leniart, Effects of serum proteins on long-term corrosion behavior of ISO 5832-9 alloy modified by titanium coatings
3. A. Krolikowski, M. Fica, M. Dzonten, Nanocrystalline alloys of iron group metals with tungsten: corrosion resistance and electrocatalytic properties toward hydrogen evolution in sulfuric acid solution
4. M. Kozak, K. Szczepanowicz, Z. Tabob, G. Mordarski, P. Nowak, P. Warszyńska “Smart” nancontainers and water traps as a novel approach to active anticorrosion protection by polymer coatings

Poster Session 17.00 – 18.30

(Building B8, AGH-University of Science and Technology in Krakow, Akademicka St.)
18.09 Wednesday

9.00 – 10.30 Plenary Session

Chairmen: F. Scholz, J. Banaś

R. A. Hillman, K. S. Ryder, C. J. Zaleski, V. C. Ferreira, Electrodeposition of metals from deep eutectic solvents: insights from combined gravimetric and optical measurements

P.J. Kulesza, Hybrid Nanostructured Materials for Electrochemical and Photoelectrochemical Energy Conversion and Storage

10.30 – 10.50 Coffee break

Morning Session, 10.50 -13.00

<table>
<thead>
<tr>
<th>Session VII</th>
<th>Session VIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation and degradation of new materials for electrochemical science and technology</td>
<td>Hydrogen in metals</td>
</tr>
<tr>
<td><strong>Chairmen:</strong> M. Janik-Czachor, M.B. Dergacheva</td>
<td><strong>Chairmen:</strong> M. Danielewski, H. Krawiec</td>
</tr>
<tr>
<td>3. V. K. Gupta, A.K. Bhartia, A New Cholesterol Biosensor based on MWCNT-ZnO Nanoparticles Using FFT Admittance Voltammetry and Flow Injection Analysis</td>
<td>3. J. Fis-Kabulska, J. Fis, Hydrogen permeation measurements for evaluation of surface changes on iron cathodes during alkaline water electrolysis</td>
</tr>
<tr>
<td>4. M. Starowicz, M. Hajas, B. Stypuła, Morphology, structure and properties of nanoparticles of oxides obtained during the anodic dissolution of metals in electrolytes with alcohol solvents</td>
<td>4. A. Gusek, J. Fis-Kabulska, T. Zakroczymski, Cheng-Hsien Yang, Jeng-Kuei Chang, Wen-Ta Tsai, Diffusion of hydrogen in magnesium studied by the electrochemical permeation method</td>
</tr>
</tbody>
</table>

Lunch 13.00 – 14.30 (“TAWO”, Reymonta 13A Str.)

Poster Session 15.00 – 17.00/ Excursions 15.00-19.00

Banquet 19.00 – 23.00

*Pałac pod Baranami, Rynek Główny 27(Market Square)*
### Session IX
Corrosion and electrochemical processes in aggressive environments  
**Chairmen:** A. Król, M. Dant

1. J. Jedliński, *Development Mechanism of the Protective Oxide Scale on Alumina-Forming High Temperature Materials: A Brief Survey* (Invited Lecture)
2. F. Depentori, C. Forcellini, J. Laukart, F. Brunke, S. Benfer, C. Siemens, W. Fürbeth, *Oxidation of lanthanum and neodymium precipitates in free-machining titanium alloys*

### Session X
Corrosion resistant alloys  
**Chairmen:** V. Vignal, K. Miecznikowski

1. P. Volovitch, M. Salguero-Azevedo, M. Serdechnova, T.N. Vu, K. Ogle, *Role of Mg, Al and Zn in aqueous corrosion of their binary and ternary alloys: microstructure effect or solution modification?*
2. L. Kwiatkowski, A. Balkowiec, A. Kapuścińska, J. Michalski, R. Latze, P. Tomasi, *The effect of cold work of AZ31 alloy on its properties and corrosion behaviour in as-received and anodised form*
3. K. Kamieniak, M. A. Malik, *Corrosion resistance of magnesium matrix composites reinforced with SiC particles*

---

**10.20 – 10.40 Coffee break**

1. S. Bouakkaz, K. Oulmi, D. Mellahi, *The adsorption and the inhibitory properties of penicillin G on the corrosion of Fe-19Cr stainless steel in HCl solution*
2. M. Dudek, *Selected aspects of protection against corrosion for anode and electrolytic materials used in solid oxide fuel cells*

---

**11.30 Closing ceremony**
Poster Presentation

1) L. Adamczyk, P. J. Kulesza, K. Miecznikowski, Composite films of silicotungstic acid and poly(3,4-ethylenedioxythiophene) and 4(pyrrole-1-yl) benzoic acid: electrochemical preparation

2) I. Dobosz, W. Gumowska, M. Czapkiewicz, Magnetic properties of Co nanowires electrodeposited in the pores of alumina membrane

3) A. Dudek, A. Wróńska, Characterisation of microstructure and functional properties of PM austeno-ferritic stainless steels after arc surface remelting

4) A. Dudek, R. Kobylecki, M. Opydo, Corrosion Behaviour and Fouling of Some Selected Steels in CFB Boiler

5) K. Giza, H. Drulis, L. Folcik, Effect of preparation method of metal hydride electrode on efficiency of hydrogen electrosorption process

6) I. Dobosz, W. Gumowska, M. Czapkiewicz, Magnetic properties of Co nanowires electrodeposited in the pores of alumina membrane

7) A. Dudek, R. Kobylecki, M. Opydo, Corrosion Behaviour and Fouling of Some Selected Steels in CFB Boiler

8) K. Giza, H. Drulis, L. Folcik, Effect of preparation method of metal hydride electrode on efficiency of hydrogen electrosorption process

9) J. Kollender, A. I. Mardare, A. W. Hassel, Localised photoelectrochemistry on tungsten oxide based thin film material libraries

10) I. Kot, H. Kawieć, The corrosion resistance of AZ91 as-cast alloy in aqueous solution containing the Cl- and SO42- ions

11) J. Loch, H. Kawieć and V. Vignal, Passivity and corrosion behaviour of TiMo10Zr4 and Ti6Al4V alloys in Ringer’s solution at 37°C: influence of the microstructure and pH

12) R. Kowalik, K. Mech, P. Zabiński, Microgravimetric studies of selenium electrodeposition onto different substrates.

13) K. Miecznikowski, M. Murawska, Electrooxidation of ethylene glycol on platinum alloy nanoparticles dispersed in metal oxide matrix

14) E. Owczarek, The effect of isobutylotrietoxysilane concentration on the protective properties of aging silane coatings on stainless steel

15) M. Shaglouf, F. Al-Tahar, A. Patil, The influences of fluid flow on electrochemical noise generation


17) W. Słupska, P. Orga, H. Kazimierzczak, Z. Świątek, Effect of tungsten on the corrosion resistance of tin-manganese alloys

18) M. Stępień, P. Handzlik, K. Fitzner, Synthesis of ZrO2 nanotubes by anodization in inorganic and organic electrolytes


20) A. Zieliński, K. Darowicki, Contact nanoimpedance measurements