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ELECTROCHEMISTRY CONFERENCE - 2019

September 30-October 02, Istanbul
Harbiye Military Museum and Conference Center
Istanbul-Turkey



Book of Abstracts

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Optoelectronic Properties of Ru(II) Complex Tethered Poly(2,5-dithienylpyrrole)Derivatives Burak ÖZER, Neşe GÜVEN, Hajar SULTANOVA, Barış YÜCEL, Pınar ÇAMURLU	147
Electrodeposition of Zn Coatings Reinforced with SiC Nanoparticles Krzysztof MECH, Marcin JASKOWSKI, Mateusz MARZEC, Konrad SZACIŁOWSKI	148
Towards Cr(VI) Free Corrosion Resistant Coatings via Comparing Salt Spray Corrosion Tests (ASTM B117) with Electrochemical Impedance Spectroscopy and Accelerated Cyclic Electrochemical Techniques (ACET) M. Bengi TAYSUN, Z. Okan OYMAN, Ali GIZLI	149
Synthesis and Study of the Thermo-mechanical and Morphological Properties of Composite Materials Based on Unsaturated Polyester Reinforced with Perlite and Electrochemical Behavior in NaCl Medium Ouided DAHES, Lairi BABOURI	150
Synthesis, Spectral Characterization, Electrochemical and Electrocatalytical Properties of Copper Complex of a Potentially Bidentate NO Schiff Base Ligand Derived from 2-(4-methoxyphenyl) Ethylamine and 2-hydroxyabenzaldehyde Ouennoughi YASMINA, Bouzerafa BRAHIM	151
The Influence of the Anodizing Temperature on the Anti-corrosion Properties of the Aluminum Alloy Nafa FEYROUZ, Bensabra HAKIM, Chopart JEAN PAUL	152
Physicochemical, Electrochemical and Theoretical Study of Some Organic Compounds as Corrosion Inhibitors of Mild Steel in 1m HCl Yasmine BOUGHOUES, Messaoud BENAMIRA, Lyamine MESSAADIA	153
Cu-SiC Thin Films as a Photocathode for the Photoelectroreduction of CO₂ Samira KACI	154
Anticorrosion Properties of Zn₃(PO₄)₂/Ppy Coatings on Steel Yeldana BAKHYTZHAN, G.s RAKHYMBAY, Y.N YESSALY, A ARGIMBAYEVA, B BURKITBAYEVA, A TURLYGAZIEVA	155
Electrochemical Synthesis of Poly(aniline-co-o-anisidine) on Steel and their Anticorrosion Properties Gulmira RAKHYMBAY, Yeldana BAKHYTZHAN, A. ARGIMBAYEVA, B BURKITBAYEVA, ZH MYKTYBAY	156
Bottom-up Cu Electrochemical Filling of Wafer Level TSV for MEMS 3D Integration Alper Kaan SOYDAN, Dilek IŞIK AKÇAKAYA, Haluk KÜLAH	157
Development of New Metal-free Organic Materials Based on Anthracenyl-Bridged TPA-Mono-, Bis-thienothiophene Dyes: Potential Photosensitizers for Efficient Dye-Sensitized Solar Cells Adewale ADELOYE	158
Cu(II) and Ni(II) Tetradate Schiff Base Complexes Containing N-substituted Pyrrole: Synthesis, Electrochemistry and Electrocatalytical Properties in Homogeneous and Heterogeneous Media Djoughra AGGOUN	159
Supercapacitive Properties of h-BN doped Gel Polymer Electrolyte Umran KURTAN, Dilzar DURSUN, Hamide AYDIN, Utkan ŞAHINTÜRK	160
Molten Salt Electrolysis as an Alternative for High Si Content Fe-Si Alloy Production Oğuz Kaan COŞKUN, Servet I. TIMUR	161
Ultrafast Cyclic Voltammetry and Spectroelectrochemistry of Conducting Polymers Hamza KAHRI, Burak ULGUT	162
Processable Multipurpose Conjugated Polymer Based on Reactive Yellow 160 and 2-hydroxycarbazole Merve GÜZEL, Metin AK	163
Synthesis and Electropolymerization of Naphthalimide Clicked Carbazole Derivative Fatma ÇOBAN, Metin AK	164

Electrochemical Material Science

(Electrochemical synthesis, processing, surface treatment, corrosion, passivation)

Anticorrosion Properties of Zn₃(PO₄)₂/Ppy Coatings on Steel

Yeldana BAKHYTZHAN, G.s RAKHYMBAY, Y.n YESSALY, A ARGIMBAYEVA, B BURKITBAYEVA, A TURLYGAZIEVA

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Electrochemical polymerization of conductive polymers is the most convenient and simple method of obtaining coatings on the surface of metals. In the process of synthesis, it is possible to control the properties of the obtaining films [1-2]. In the work, polypyrrole composite zinc-phosphate coatings on mild steel grade St3 were successfully synthesized. Electropolymerization of polypyrrole occurs with the previous passivation of the surface of the steel with a tartrate protective layer. The corrosion properties (film resistance and corrosion rate) of the synthesized coatings with the composition Zn₃(PO₄)₂/polypyrrole were determined by two methods, linear voltammetry and impedance spectroscopy. These results were used to analyze the protective effect of the obtaining film, LV (97%) and EIS (80%). The morphology of the synthesized coatings was also investigated. According to the results of scanning electron microscopy, polypyrrole shows a globular morphology of various sizes. The deposition of polypyrrole on the surface of zinc phosphate, leads to the formation of a homogeneous and compact sediment and, consequently, leads to an increase in the protective properties of this coating.

DRAFT

[1] Umoren S. A., Solomon M. M., Recent developments on the use of polymers as corrosion inhibitors-A review. The Open Mater. Sci. J. V. 8, 30 (2014). doi: 10.2174/1874088X01408010039.

[2] Visy C., Bencsik G., Nemeth Z., Vertes A., Synthesis and characterization of chemically and electrochemically prepared conducting polymer/iron oxalate composites. Electrochimica Acta. 53. 3942 (2008). doi: 10.1016/j.electacta.2007.07.060

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