

Research Infrastructure in Support of Science, Technology and Culture

PROGRAMME

29/09/2020

9:30 – 9:40 **Opening**

MODULE I: Synthesis and Characterization of New Materials

Section A: Oral Presentations

Chair: Yuri Kalvachev

- 09:40 – 10:00 ***A. Nakova, R. Ivanov, M. Ilieva, V. Tsakova***
Electrode-assisted Electroless Metal Deposition – Palladium Nanocatalysts for Organic Fuel Oxidation
- 10:00 – 10:20 ***L. Mihaylov, E. Vasileva, St. Todorova, R. Stoyanova, T. Spassov***
Microstructural Study of Porous Metals Obtained by Selective Dissolution
- 10:20 – 10:40 ***K. Maksimova-Dimitrova, E. Lefterova, G. Borisov, E. Slavcheva***
Nanocomposite Catalysts Based on Mn, Ni, Co For Alkaline Water Electrolysis
- 10:40 – 11:10 **Break**

Chair: Vessela Tsakova

- 11:10 – 11:30 **B. Abrashev, M. Slavova, E. Mladenova, B. Burdin, G. Raikova, V. Terziev, K. Petrov, D. Vladikova**
Electrochemical Properties of Optimised Electrode Materials for Rechargeable Zn-Air Batteries
- 11:30 – 11:50 **E. Petkucheva, G. Borisov, E. Lefterova, E. Slavcheva**
Iron Modified Ni-Foam as a Self-Standing Electrode for Efficient, Durable Oxygen Evolution for Alkaline Water Splitting
- 11:50 – 12:10 **O. Kostadinova, V. Ilcheva, V. Boev, T. Petkova, B. Burdin, E. Mladenova, D. Vladikova, L.C. Costa**
Electrochemical Impedance Behavior and Relaxation Processes in H₃PO₄-Enriched SiO₂-TiO₂-P₂O₅ System
- 12:10 – 12:30 **T. Cholakova, L. Kolaklieva, Hr. Bahchedjiev, V. Chitanov, S. Kolchev, R. Kakanakov**
Improvement the Mechanical Properties of TiCN / ZrCN Multilayer Coating With Modulated Period for Industrial Applications

12:30 – 14:00 **Lunch time**

Section B: Oral Presentations

Chair: Pavletta Shestakova

- 14:00 – 14:20 **M. Ognyanov, Y. Georgiev, P. Denev**
An Automated System for the Quantification of Uronic Acids and Neutral Sugars (Skalar San+++ Analyzer) - Components, Advantages, Disadvantages, and Applications
- 14:20 – 14:40 **E. Mladenova, L. Dobрева, M. Slavova, G. Raikova, O. Kostadinova, B. Burdin, S. Danova**
Study of Polarizable Dielectric Fluids - Cow and Soya Milk by Dielectric Impedance Spectroscopy
- 14:40 – 15:00 **E. Mladenova, I. Karadjova**
Analytical Atomic Spectroscopy in Bee Honey Analysis

15:00 – 15:30 Break

15:30 – 17:00 **Poster Session A**

A1 V. Chakarova, L. Mirkova, M. Monev

Electrochemical Method for Studying the Process of Hydrogen Permeation into Metals during Aqueous Electrolysis. Hydrogen Permeation in Electroless Ni-P Coatings

A2 R. Andreeva, E. Stoyanova, D. Stoychev

Corrosion-Protective Ability of Chemically Deposited Conversion Layers on Technically Pure Aluminum, after Application of Specific Additional Treatments of the Aluminum Substrate and Formed on it Ceria Conversion Layer

A3 M. Peshova, V. Bachvarov, St. Vitkova, N. Boshkov

Corrosion Characterization of Environmentally Friendly Conversion Films on Zinc-based Protective Coatings by Electrochemical Impedance Spectroscopy

A4 R. Ivanov, V. Tsakova, C. Czibula, C. Teichert

Electroless Deposition of Pd on Carbon Substrates

15:30 – 17:00 **Poster Session B**

B1 R. Mladenova, K. Aleksieva

Effect of Gamma-Irradiation on Bee Pollen Antioxidant Activity and Free Radicals Studied by EPR Spectroscopy

B2 M. Tavlinova-Kirilova, M. Kamenova-Nacheva, K. Kostova, V. Dimitrov

Synthesis of Chiral, non-Racemic Aminonaphthols and Determination of their Chiroptical Properties Using a Polarimeter

B3 M. Kamenova-Nacheva, M. Tavlinova-Kirilova, K. Kostova, V. Dimitrov

Enantioselective Addition of Et₂Zn to Aldehydes - Determination of Enantiomeric Excess by High-Performance Liquid Chromatography (HPLC)

B4 P. Kardaleva, S. Todinova, D. Yancheva, M. Guncheva

Study of the Conformation and Thermal Stability of Bovine Serum Albumin in Complexes with Ionic Liquids Containing Naproxen Anion

B5 Y. Mitrev, D. Gerginova, S. Simova

Quantitative NMR Spectroscopy of sugars – which experiment to choose?

B6 N. Anastassova, N. Hristova-Avakumova, K. Radev, D. Yancheva

New Indole Arylhydrazones and Study of their Protective Properties on Iron Induced Oxidative Damage of Biologically Important Molecules

B7 M. Argirova, E. Cherneva, D. Yancheva

New 2-Amino Benzimidazolyl Hydrazone Complexes: Synthesis, Spectroscopic and DFT Investigation

B8 D. Gerginova, Y. Mitrev, S. Simova

Are we Drinking a Real Wine? ¹H NMR Metabolomic Profiling of Bulgarian Wines

B9 A.Daskalova, L. Velkova, A. Dolashki, T.Stoyanova, L. Woelki, V. Atanasov, D.Kaynarov, P. Dolashka

Metabolites Isolated from Garden Snail Helix Aspersa with Antibacterial and Antifungal Activity Determined through ¹H NMR and Mass Spectrometry

30/09/2020

Section C: Oral Presentations

Chair: Yuri Kalvachev

9:30 – 9:50 **S. Todorova, J. L. Blin, A. Naydenov, B. Lebeau, D. Karashanova, H. Kolev, A. Dotzeva, D. Filkova, L. Vidal, L. Michelin, L. Josien**
Co-Mn Mixed Oxides Supported on Hierarchical Macro-Mesoporous Silicas for Co and VOCs Oxidation

9:50 – 10:10 **T. Todorova, P. Shestakova, T. Petrova, M. Popova, Hr. Lazarova, Yu. Kalvachev**
Fluoride etching of AlZSM-5 and GaZSM-5 zeolites

10:10 – 10:30 **P. Shestakova, M. Popova, H. Lazarova, T. K. N. Luong, I. Trendafilova, J. Mihály, Á. Szegedi, T. N. Parac-Vogt**
NMR Characterization of Hybrid Catalyst with Combined Lewis and Brønsted Acidity Based on ZrIV Substituted Polyoxometalate Grafted on MCM-41 Mesoporous Silica for Esterification of Renewable Levulinic Acid

10:30 – 11:00 **Break**

11:00 – 11:20 **G. Issa, M. Dimitrov, R. Ivanova, T. Tsoncheva**
Catalytic Behavior of Nanostructured Ceria Promoted Manganese in Vocs Elimination

11:20 – 11:40 **R. Ivanova, G. Issa, M. Dimitrov, T. Tsoncheva**
Comparative Study of the Properties of Nanostructured Oxide Materials Based on Titanium Dioxide and their Application as Catalysts for Environmental Protection

11:40 – 12:00 **St. Kozhukharov, Ch. Girginov**
The Electrochemical Impedance Spectroscopy as a Powerful Instrument for Corrosion Rate Determination

12:00 – 13:30 **Lunch time**

Section D: Oral Presentations

Chair: Pavletta Shestakova

13:30 – 13:50 ***R. Georgiev, K. Lazarova, M. Vasileva, B. Georgieva, T. Babeva***
Micelles-Structured Bragg Stack of Nb₂O₅ for Sensing Applications

13:50 – 14:10 ***St. Pereva, Ts. Sarafska, V. Nikolova, S. Angelova, T. Spassov, T. Dudev***
Inclusion Compounds of NSAIDs with Cyclodextrins

14:10 – 14:30 ***Z. Todorova, O. Tumurbaatar, N. Koseva***
Application for Analytical Ultracentrifugation and Dynamic Light Scattering for
Study of the Specific Interaction between Con A and a Star-Shaped
Glycopolymer

14:30 – 15:00 **Break**

15:00 – 15:20 ***E. Haladjova, M. Smolíček, I. Ugrinova, D. Momekova, P. Shestakova,
Z. Kroneková, J. Kronek, S. Rangelov***
DNA Delivery Systems Based on Copolymers of Poly (2-Methyl-2-Oxazoline)
and Polyethyleneimine

15:20 – 15:40 ***M. Dangalov, Y. Mitrev, N. Toncheva-Moncheva, Ch. Novakov,
N. G. Vassilev***
In Situ Irradiation NMR Spectroscopy in the Design of New Functional Materials
(LED-NMR)

15:40 – 16:00 **Break**

16:00 – 17:30 **Poster Session C**

C1 *T. Todorova, P. Petrova, Yu. Kalvachev*
Mordenite as Catalyst Support for Complete VOCs Oxidation

C2 *M. Shopska, S. Todorova, I. Shtereva, H. Kolev, K. Aleksieva, G. Kadinov*
Cobalt-Palladium Bimetallic System Behavior During CO Hydrogenation: Comparative
Study of the Support Effect

**C3 *N. Lihareva, L. Dimowa, O. Petrov, Y. Tzvetanova, I. Piroeva,
S. Atanasova-Vladimirova***
Study of the Kinetics and Mechanism of Sr²⁺ Sorption by Clinoptilolite

C4 *P. Vassileva, A. Detcheva, I. Uzunov, S. Uzunova, D. Voykova*
Investigation of Lead (II) Removal from Aqueous Solutions Using Waste Material Based
on Rice Husk

C5 A. Kosateva, B. Tsyntarski

Raman Spectroscopy of Water Samples

C6 Ch. Girginov, St. Kozhukharov, A. Dishliev

Hard Anodization as an Efficient Technique for Enhancement of the Mechanical Surface Properties of Aluminum and its Alloys

16:00 – 17:30

Poster Session D

D1 I. Dionisiey, K. Buchkov, V. Marinova, I. Avramova, H. Dikov, D. Dimitrov

Two-Dimensional Layers of PtSe₂ – Synthesis and Characteristics for Opto-Electronics Applications

D2 G. Gerginov, S. Simeonov

Green and Efficient Extraction of Shikimic Acid from Illicium Verum with Deep Eutectic Solvents

D3 B. Napoleonov, D. Petrova, V. Marinova, B. Blagoev, V. Strijkova and D. Dimitrov

Atomically Deposited Nanolayers of ZnO Doped with Al: Characterizations and Applications

D4 G. Marinov, B. Georgieva, V. Strijkova, N. Todorova, T. Babeva

Thin Nanocrystalline ZnO Films Doped with Al and Co Deposited by Electrospray: Properties and Applications

The poster sessions of MODULE I will take place in the open air and located in the Campus “4-th km” of Bulgarian Academy of Sciences

MODULE II Analysis, Restoration and Conservation of Archeological and Ethnographic Artefacts

29/09/2020

Oral presentations

Chair: Christo Popov

09:40 – 10:00 **P. Penkova**

Investigation of Manufacturing Technology of Artifacts from a Tumulus Mound near the Village of Chudomir

10:00 – 10:20 **I. Hristov, I. Prokopov, V. Penchev, A. Vatov**

Analysis of Hellenistic and Celtic tetradrachms from the village of Terziysko, the Troyan region

10:20 – 10:40 **P. Y. Georgiev, K. Dimitrov**

Documentation of underwater archaeological excavation through digital photogrammetry

10:40 – 11:10 **Break**

11:10 – 13:00 **Poster Session**

Chair: Christo Popov

M2.1 V. Fol, R. Preshlenova, R. Popova

Creating the e-Database Encyclopaedia Ancient Thrace and the Thracians Aimed at Promoting the Cultural Heritage on the Territory of the Republic of Bulgaria

M2.2 V. Bonev, B. Zlateva, T. Stoyanov

Using of p_XRF for Analysis of Archaeological Finds Made of Copper and Copper Alloys

M2.3 V. Lyubomirova, R. Djingova, B. Todorov, V. Mihaylova, B. Zlateva, I. Belovezhdova

Application of LA-ICP-MS for Investigation of Archaeological and Geological Samples

M2.4 B. Todorov, V. Lyubomirova, R. Djingova, V. Mihaylova, B. Zlateva, I. Belovezhdova

Application of Gamma Spectrometry for Dating of Archaeological and Geological Samples

- M2.5 N. Lumov, S. Belishki, S. Stoyanov, D. Yancheva, E. Velcheva, B. Stamboliyska**
A technological study on the wall paintings in the Russian Church St Nikolay in Sofia:
identification of the binding media by IR spectroscopy
- M2.6 S. Belishki**
Application of multispectral imaging for the study of the painting Portrait of Alexander II
by Stanislav Dospevski
- M2.7 I. Mishkova, G. Baykusheva**
Case studies of the decorative elements of painted chests from the collection of
IEFSEM-BAS
- M2.8 A. Vatov, Ts. Docheva, S. Hristova**
Application of Reflectance Transformation Imaging (RTI) in the study of cultural artefacts
from the fund of architectural complex - "Balchik Palace"
- M2.9 B. I. Borisov, D. Kyuranova**
Solved conservation tasks on a shroud, owned by Historical Museum, Pomorie

**The poster session of MODULE II will take place virtually in the web-platform of
the conference.**