



This meeting will be co-sponsored
by The Electrochemical Society



14th
ABAF

BRNO 2013

Advanced Batteries, Accumulators
and Fuel Cells

INTERNATIONAL CONFERENCE

September 1st - September 5th 2013

SCIENTIFIC AND SOCIAL
PROGRAM

Organised by:

Department of Electrical and Electronic Technology,
Faculty of Electrical Engineering and Communication,
Brno University of Technology

Organizing committee:

Jiří Vondrák
Marie Sedlářková

***The 14th International Conference Advanced Batteries,
Accumulators and Fuel Cells will be co-sponsored by***

The Electrochemical Society



Program of lectures and posters

Sunday, September 1th

17:00 – 20:00

Registration – get together party

Monday, September 2th

8:00

Registration

10:00

Opening of ABAF – 14th

Prof. Ing. Jarmila Dědková, CSc.

Dean of Faculty of Electrical Engineering and Communication

Prof. Ing. Jiří Vondrák, DrSc.

Organisation committee

Ass. Prof. Ing. Marie Sedlaříková, CSc.

Organisation committee

Ing. Petr Koláček

E.ON Distribuce, a.s. Brno - Electromobility in E.ON Czech and the prospects in the distribution network

Ing. Martin Šilhan, PhD, MBA

ČEZ, Czech Republic

10:30

M. Doležal

A CHALLENGE FOR TALENTED SCIENTISTS

10:40

Coffee-break

10:50

D. Barraco

FROM THE SALT MINE TO THE BATTERY PROJECTS IN ARGENTINE

Materials for anhydrous batteries

11:20

Key lecture

M. Kundu, L. Liu

NANOSTRUCTURED METAL OXIDE ELECTRODES FOR ELECTROCHEMICAL ENERGY STORAGE

11:50

R. Oriňáková, L. Škantárová, M. Filkusová, A. Oriňák

ELECTROCATALYSIS AT NANOPARTICLES AND NANOSTRUCTURED SURFACES

12:30

Time for lunch

- 13:30 *B. Czajka, M. Zieliński, M. Wojciechowska, I. Tomska-Foralewska, M. Osińska-Broniarz*
MODIFYING MgO AS A BINDER AGENT APPLIED IN THE MOLTEN ELECTROLYTE
- 13:50 *M. O. Danilov, G. Ya. Kolbasov*
CATALYTICALLY ACTIVE ELECTRODE MATERIALS FOR OXYGEN ELECTRODES BASED ON TUNGSTEN - MODIFIED CARBON NANOTUBES
- 14:10 **Coffee break**
- 14:20 *A. Fedorková, R. Oriňáková, M. Sedlaříková, P. Gómez-Romero*
S-LiFePO₄-PPy CATHODE MATERIAL FOR Li/S BATTERIES PREPARED BY SOLID-STATE SYNTHESIS
- 14:40 *J. Vondrák, M. Sedlaříková*
RECENT DEVELOPMENT IN LITHIUM BATTERIES AND RELATED TOPICS

Special simulations methods

- 15:00 *P. Vydrobal, J. Maxa, T. Kazda, J. Vondrák, J. Tichý*
NUMERICAL SIMULATION OF LITHIUM ION BATTERY
- 15:20 **Coffee break**
- 15:30 **Poster section**
- 17:00 **Social evening**

Tuesday, September 3th

New materials for electrochemical power sources

- 9:00 **Key lecture**
P. Gómez-Romero
FROM HYBRID DEVICES TO HYBRID MATERIALS
- 9:40 *F. Susai Amalraj*
STUDIES ON HIGH ENERGETIC LI RICH Li_x[MnNiCo]O₂ ELECTRODES AT 60 °C FOR Li-ion BATTERIES
- 10:00 *O. Čech, J. Morávková, M. Sedlaříková, J. Vondrák*
NANOFIBROUS Li₄Ti₅O₁₂ PREPARED BY CENTRIFUGAL FORCE SPINNING AND ITS LITHIUM INSERTION PROPERTIES

10:20	Coffee break
10: 40	<i>M. Slávik</i> LITHIO SELF SUPPORTING SULFUR CORE-SHELL METALLIC NANOWIRES
11:00	<i>J.Polonský, J. Hnát, M. Paidar, K. Bouzek</i> ADVANCED MATERIALS FOR PEM WATER ELECTROLYSIS
11:20	Poster section
13:00	Time for Lunch
14:30	Excursion Slavkov, The Cairn of Peace Evening meal



Wednesday, September 4th

Physical Method for Investigation

9:00	Key lecture <i>L. Kavan</i> INVESTIGATION OF LITHIUM INSERTION INTO TiO ₂ BY RAMAN SPECTROSCOPY SUPPORTED BY 6/7Li AND 16/18O ISOTOPE SUBSTITUTIONS
9:40	<i>P. Krtil</i> CATALYST BREATHING IN ELECTROCATALYTIC PROCESSES
10:10	<i>V. Di Noto, K. Vezzù, E. Negro, S. Polizzi</i> MORPHOLOGY AND ELECTROCHEMICAL INVESTIGATIONS ON MULTIMETAL CARBON NITRIDE ELECTROCATALYSTS SUPPORTED ON GRAPHITIZED POLYKETONE NANOBALLS
10:40	Coffe break

Application of batteries for electromobility and industry

11:00	<i>P. Poupa</i> OPERATION OF E-OCTAVIA FLEET
11:20	<i>M. Hladík</i> SECONDARY CELLS AND ENERGY ACCUMULATION IN ENERGETIC APPLICATIONS AND TRANSPORTATION
11:40	<i>J. Marušinec</i> ELECTRIC CARS IN CZECH REPUBLIC
12:00	Coffe break
12:10	<i>J. Kašpárek</i> EXPERIMENTAL PRODUCTION OF Li-ACCUMULATORS IN CZECH REPUBLIC
12:30	<i>P. Vorel, P. Procházka, P. Huták, I. Pazdera, D. Červinka</i> FAST-CHARGER FOR ELECTRIC PLANE
12:50	Time for lunch
13:50	Visiting laboratories
15:50	City guide
17:30	Closing ceremony, dinner

List of posters

Materials for anhydrous batteries

1. *O. Čech, A. Fedorková, M. Sedlaříková*
SULFUR BASED CATHODE MATERIALS FOR Li-ION BATTERIES
2. *M. Frk, J. Máca, Z. Rozsivalová, M. Sedlaříková*
PROPERTIES OF SOLVENTS FOR APROTIC ELECTROLYTES WITH FIRE RETARDANT
3. *T. Kazda, J. Vondrák, V. Di Noto, M. Sedlaříková, P. Čudek*
COMPARISON OF PRODUCTION PROCESSES OF HIGH-VOLTAGE CATHODE MATERIALS
4. *J. Libich, M. Sedlaříková, J. Vondrák, M. Frk*
NEW APPROACH TO THE PREPARATION OF THE PRELITHIATED GRAPHITE MATERIALS
5. *J. Máca, M. Frk, J. Vondrák and M. Sedlaříková*
THE USE OF TRIETHYLPHOSPATE AS FLAME RETARDANT IN LITHIUM ION BATTERIES
6. *R. Peskov, R. Apostolova, E. Shembel, M. Danilov*
COMPARISON STUDY OF LiMn_2O_4 COMPOSITES WITH GRAPHITE AND CARBON NANOTUBES IN THE ELECTRODES FOR LI-ION BATTERIES
7. *D. Pléha, M. Musil, P. Čudek*
CHARACTERIZATION OF PVdF FIBROUS MEMBRANE SEPARATORS FOR LITHIUM-ION RECHARGEABLE BATTERIES
8. *G. Z. Tulibaeva, A. V. Yudina, A. F. Shestakov, O. V. Yarmolenko*
EXPERIMENTAL AND THEORETICAL INVESTIGATION OF THE CONDUCTING PROPERTIES OF ORDERED LAYERS OF CROWN ETHER COMPLEXES WITH Li^+ IONS ON THE LITHIUM ANODE SURFACE
9. *L. Vojtěch, J. Hájek, M. Neruda, M. Zatloukal*
MONOMETALLIC TEXTILE ELECTRODES FOR „GREEN“ ELECTRONICS
10. *A. V. Yudina, A. V. Chernyak, V. I. Volkov, T. L. Kulova, O. V. Yarmolenko*
INVESTIGATION OF ION TRANSPORT IN THE NETWORK POLYMER GEL ELECTROLYTES, MODIFIED WITH IONIC LIQUID BMIBF₄ FOR LITHIUM-ION BATTERIES
11. *M. Musil, D. Pleha, J. Libich*
ELECTROSPINNED PVDF SEPARATORS FOR LITHIUM ION BATTERIES
12. *O. Haik, M. Talianker, D. Hirshberg, E. Zinigrad, B. Markovsky, D. Aurbach*
THERMAL PROCESSES IN SYSTEMS “Li-RICH CATHODE MATERIALS - LiPF_6 -BASED ORGANIC SOLUTIONS”

13. T. Boyadzhieva, V. Koleva, R. Stoyanova, E. Zhecheva,
ION EXCHANGE REACTIONS FOR SYNTHESIS OF NANO-SIZED LITHIUM AND SODIUM
MANGANESE PHOSPHO-OLIVINES AS CATHODE MATERIALS IN LITHIUM AND
SODIUM ION BATTERIES

Special simulations methods

14. J. Maxa, P. Vyroubal, J. Vaněk, K. Hladká
ANALYSIS OF USING THE AIR FOR SOLAR PANEL COOLING WITH ANSYS SYSTEM

Special Materials and Methods

15. L. Chladil, P. Čudek, M. Musil
GROWTH OF ZINC DENDRITES FROM THE AQUEOUS KOH SOLUTION

16. Sv. Ivanova, E. Zhecheva, R. Stoyanova
ENHANCING OF THE ELECTROCHEMICAL BEHAVIOR OF $\text{LiNi}_{1/2}\text{Mn}_{3/2}\text{O}_4$ BY ACID
TREATMENT

17. Z. Joska, J. Kadlec, O. Klanica, J. Tomáščík, E. Svoboda
TESTING OF DLC COATING ON PLASMA NITRIDED AUSTENITIC STAINLESS STEEL

18. F. Onderka, O. Klanica, D. Dobrocký, J. Kadlec
REASONS OF TOTAL ENDOPROSTHESIS FAILURE

19. M. Kalapsazova, R. Stoyanova, E. Zhecheva
STRUCTURAL CHARACTERIZATION AND ELECTROCHEMISTRY OF LAYERED
 $\text{Na}_{0.65}\text{Ni}_{0.5}\text{Mn}_{0.5}\text{O}_2$ OBTAINED BY FREEZE-DRYING METHOD

20. O. Kaválek, L. Chladil, J. Máca
EFFECT OF INHIBITORS ON Zn-DENDRITE FORMATION

21. P. Křivík
PULSE CHARGING OF LEAD ACID BATTERIES

22. M. Kunovjánek, M. Musil, L. Trnková
ALKALI HYDROXIDE DOPED PVA MEMBRANES

23. H. Polsterová
TEMPERATURE DEPENDENCE OF THE ELECTRICAL PROPERTIES OF
NANOCOMPOSITES

24. R. Stojan, J. Vaněk, M. Malý, R. Gvritishvili, L. Šimonová, O. Frantík
ANALYSIS OF LUMINESCENCE RADIATION INTERACT BY SILICON DEFECTS

25. P. Tošer, P. Bača
AGM SEPARATOR IN VRLA BATTERIES

26. S. Vaculík, J. Zimáková, P. Bača

THE INFLUENCE OF TEMPERATURE IN CURING PROCESSES IN THE
MANUFACTURING OF ELECTRODES OF LEAD-ACID BATTERIES

27. J. Vaněk, R. Gvritishvili, J. Strnadel

SNAIL TRACKS PHENOMEN ON PHOTOVOLTAIC MODULES

28. M. O. Danilov, I. A. Slobodyanyuk, I. A. Rusetskii, G. A. Kolbasov

SYNTHESIS THE GRAPHENE FROM CARBON NANOTUBES, BASED ON THE
ELECTROCHEMICAL APPROACH AND THE EFFECTS OF OXIDIZING AND REDUCING
AGENTS ON ITS ELECTROCHEMICAL PERFORMANCES IN OXYGEN ELECTRODES

29. M. Musil, P. Dvořák

REVIEW ON GEL POLYMER ELECTROLYTES FOR LITHIUM ION BATTERIES AND
SUPERCAPACITORS

30. P. Dvořák, M. Musil

POLYMER GEL PMMA BASED ELECTROLYTES CONTAINING Li^+ SALTS

Application of batteries for electromobility and industry

30. D. Červinka, J. Knobloch, B. Klíma, P. Huták, J. Kadlec, P. Fajkus

ELECTRIC DRIVE OF PROPELLER FOR BATTERY-POWERED AIRCRAFT

32. J. Kadlec, R. Cipin, B. Klíma, D. Červinka, P. Vorel

Li-ION ACCUMULATORS FOR PROPULSION SYSTEM OF ELECTRIC AIRPLANE VUT 051
RAY

33. B. Polnik, Z. B. Miedziński, A. Kozłowski

POSSIBILITY OF USING THE ADVANCED BATTERY SYSTEMS IN THE POLISH MINING
INDUSTRY

34. P. Procházka, R. Cipin, I. Pazdera, J. Knobloch, P. Fajkus

COMPARISON OF FUEL CELL AND Li-ION ACCUMULATORS FOR USING IN
ELECTRICAL AIRPLANE

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