



This meeting will be co-sponsored
by The Electrochemical Society



12th
ABAF

BRNO 2011

**Advanced Batteries, Accumulators
and Fuel Cells**

INTERNATIONAL CONFERENCE

September 11th - September 14th 2011

SCIENTIFIC AND SOCIAL PROGRAM

Organised by:

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

Chairman:
Jiří Vondrák

Vice-chairman
Marie Sedlaříková

The 12th International Conference Advanced batteries, accumulators and fuel cells will be co-sponsored by:

The Electrochemical society



SIGMA-ALDRICH®

Mart



INVESTMENTS IN EDUCATION DEVELOPMENT

Sunday, September 11th

16:00 – 19:00 **Welcome party - Registration**

Monday, September 12th

8:00 – 10:00 **Registration**

10:00 **Opening of ABAF – 12**

prof. Ing. Jarmila Dědková, CSc.

Dean of Faculty of Electrical Engineering and Communication

Prof. Ing. Jiří Vondrák, DrSc.

Chairman

Ass. Prof. Ing. Marie Sedlaříková, CSc.

Vice-chairman

Prof. Petr Vanýsek

Representant of ECS

Key lecture

10:30 – 11:30

Vito Di Noto, E. Negro

NANO-ELECTROCATALYSTS BASED ON CARBON NITRIDE
SUPPORTS FOR THE ORR AND FOR IN PEM FUEL CELLS

11:30 – 12:30

Time for lunch

12:30 – 13:00

P. Vanýsek

THE THERMODYNAMIC LIMITS TO ENERGY CONVERSION: HOW
TO JUSTIFY RESEARCH IN SEARCH FOR ALTERNATIVE ENERGY
SOURCES

13:00 – 13:30

Hans-Wilfried Mindt

ABOUT INFLUENCE OF MEA COMPRESSION & VARIED MATERIAL
PROPERTIES ON THE EFFICIENCY OF PEMFC'S

13:30 – 14:00

Coffee break

14:00 – 14:30

Aprotic Electrolytes

R. Kořínek, K. Bartušek, J. Vondrák

NMR MEASUREMENT OF RELAXATION TIMES AND DIFFUSION OF
GEL ELECTROLYTES BASED ON NaClO₄ DURING
POLYMERIZATION PROCESS

14:30 – 15:00	<i>S. Abbrent Nováková, J. Kříž, J. Michálek</i> NMR INVESTIGATION OF THE INTERACTION OF Li ⁺ IONS WITH SOME PRECURSORS OF THE LITHIUM BATTERY POLYMER SYSTEM
15:00 – 15:30	<i>J. Máca, J. Vondrák, M. Sedlaříková, M. Zatloukal, K. Bartušek</i> PHASE DIAGRAM FOR MIXTURES OF SULFOLANE – DIMETHYLCARBONATE FOR USING IN ELECTROLYTES FOR LITHIUM – ION BATTERIES
15:30 – 16:00	<i>Z. Štichová, J. Vondrák, M. Sedlaříková</i> ELECTROCHEMISTRY OF SULFOLANE AT LOW TEMPERATURES
16:00 – 17:00	Poster section
17:00	Evening Party

Tuesday, September 13th

	Problems of lithium batteries, supercapacitors and electrochromics Key lecture:
09:00 – 10:00	<i>A. Visintin, J. E. Thomas, B. Castro, R. Milocco, S. Real, J. Sacco, G. Garaventa, W. Triaca</i> THE UNLP RESEARCH AND DEVELOPMENT PROJECT ON LITHIUM-ION BATTERIES FOR ELECTRIC CARS
10:00 – 10:30	<i>G. Ferrara, F. Vergottini, M. C. Mistretta, L. Damen, R. Inguanta, C. Arbizzani, M. Guidotti, S. Piazza, A. Albanese, M. Bargauan, C. Sunseri, M. Mastragostino</i> A VIABLE PATH TOWARD A HIGH ENERGY DENSITY ANODE FOR LITHIUM-ION BATTERIES
10:30 – 11:00	<i>J. Vondrák, M. Sedlaříková, P. Dvořák</i> ELECTRODES FOR SUPERCAPACITORS AND INTERCALATION POWER SOURCES
11:00 – 11:30	<i>R. Apostolova, U. Tkachenko, O. Kolomojets, E. Shembel</i> THIN-LAYER ELECTROLYTIC NICKEL-HYDROXIDE, - OXIDE COMPOUNDS IN MODEL ELECTROCHEMICAL CAPACITOR
11:30 – 12:00	<i>I. Jakubis, M. Sedlaříková, J. Vondrák</i> ELECTRODEPOSITED THIN LAYERS OF TiO ₂
12:00 – 13:00	Time for lunch
13:00 – 14:00	Poster section
14:15	Excursion to South Moravia

Wednesday, September 14th

9:00 – 9:30	Aqueous batteries <i>L. Nezgodá, T. Máca, J. Vondrák, M. Sedlaříková, P. Špičák</i> EFFECT OF MULTIELEMENTS INTRODUCING INTO LDH STRUCTURE ON PERFORMANCE STABILITY OF ALPHA NICKEL HYDROXIDE
9:30 – 10:00	<i>Swoboda, P., Sierczynska, A., Lota, K., Lota, G.</i> EFFECTS OF ADDITION OF DIFFERENT CARBON-BASED COMPOSITE MATERIALS ON THE ELECTROCHEMICAL PROPERTIES OF A NICKEL HYDROXIDE ELECTRODE
10:00 – 10:30	<i>M. O. Danilov, G. Ya. Kolbasov, I. A. Rusetskii, I. A. Slobodyanyuk</i> ELECTROCATALYTIC PROPERTIES OF NANOCOMPOSITES FOR ELECTROCHEMICAL POWER SOURCES FROM THE STANDPOINT OF LOCALIZATION OF REACTIONS
10:30 – 11:00	<i>M. Kunovjének</i> HIGH CONDUCTIVITY PVA MEMBRANE FOR ELECTROLYSIS
11:00 – 11:30	Coffee break
11:30 – 12:00	Solar cells <i>A. Vesely, J. Vanek, R. Stojan</i> CONCENTRATOR PHOTOVOLTAIC SYSTEMS
12:00 – 12:30	General material research <i>TAIWO OLUFEMI KAYODE WILLFRED</i> DISPERSION STRENGTHENED SUPER ALLOYS BY MECHANICAL ALLOYING
12:30 – 13:00	<i>Dr. Narcisse N'Dri, Dr. Mustafa Megahed, S. D. Fabre</i> THERMO-MECHANICAL SIMULATION OF SOLID MICROBATTERIES
13:00 – 14:00	Time for lunch
14:00 – 14:30	Electric vehicles <i>M. Polacek, J. Kaspárek</i> PRODUCTION OF BATTERIES LiFePO_4 FOR ELECTRIC VEHICLES AND ACCUMULATION SYSTEMS
14:30 – 16:30	Visiting our laboratories
16:30 – 18:00	Visiting the City
18:00	Closing ceremony

List of posters

Fuel Cells

1. *Mindt, H. - W.*
ABOUT INFLUENCE OF MEA COMPRESSION & VARIED MATERIAL PROPERTIES ON THE EFFICIENCY OF PEMFC'S
2. *Barbashov, V.I., Nesova, E.V.*
ANISOTROPY IN CONDUCTIVITY OF SCANDIA-STABILIZED
3. *Chladil, L., Musil, M., Kunovjánek, M.*
PVA MEMBRANES FOR ALKALINE FUEL CELLS

Aprotic Electrolytes

4. *Dvořák, P., Musil, M.*
GEL POLYMER ELECTROLYTES WITH HIGHER THERMAL STABILITY
5. *Lota, K., Lota, G., Szal, A., Sierczynska, A.*
CONDUCTING POLYMERS AS ELECTRODE MATERIALS FOR ELECTROCHEMICAL CAPACITORS

Modern electrochemical systems - Problems of lithium batteries, supercapacitors and Electrochromics

6. *Cech, O., Thomas, J. E., Cuscueta, D., Visintin, A., Dvořák, P., Trnkova, L., Sedlarikova, M., Vondrak J.*
COBALT DOPED LiFePO_4 / C COMPOSITE MATERIAL FOR Li-ION ANODES
7. *Fedorková, A., Oriňáková, R., Oriňák, A., Wiemhöfer, H. – D.*
IMPROVING LiFePO_4 CATHODE MATERIAL BY CONDUCTING PPY-MWCNTS COATING
8. *Makovička, J., Sedlaříková, M., Vondrák, J., Libich, J.*
NEGATIVE ELECTRODE OF LITHIUM SECONDARY CELLS

Aqueous batteries

9. *M. Kopczyk, A. Sierczynska, P. Swoboda, K. Lota, G. Lota*
EFFECTS OF ADDING DIFFERENT QUANTITIES OF CARBON NANOTUBES ON THE ELECTROCHEMICAL PROPERTIES OF METAL HYDRIDE ELECTRODE
10. *Tonar, K., Bača, P., Micka, K.*
INFLUENCE OF CARBON ON THE NEGATIVE ACTIVE MASS ON THE LIFE OF THE LEAD-ACID BATTERY
11. *Tonar, K., Bača, P., Micka, K., Křivík, P., Abrahám, P., Tošer, P.*
THE EFFECT OF MECHANICAL PRESSURE ON CYCLE LIFE OF LEAD-ACID ACCUMULATOR FOR HEV
12. *Tošer, P., Křivík, P., Micka, K.*
IMPROVING OF THE NEGATIVE LEAD-ACID BATTERY ELECTRODES BY USING EXTRA ADDITIVES
13. *Vrbický, J., Vondrák, J., Sedlaříková, M.*
NICKEL HYDROXIDE PREPARED IN VARIOUS CONCENTRATION
14. *Pléha, D., Dvořák, P., Kunovjánek, M., Musil, M., Čech, O.*
SEPARATORS FOR ALKALINE ACCUMULATORS

Solar cells

15. *Vaněk, J., Dolenský, J., Hrozek, J.*
SPECTRAL DEPENDENCE OF LUMINESCENCE OF SOLAR CELLS

General material research

16. *Abraham, P., Tošer, P., Bača, P.*
MEASURE APPARATUS FOR HYDROGEN ENERGY STORAGE
17. *Čudek, P., Flodrová, E., Pléha, D.*
SURFACE DIAGNOSTIC OF ELECTRODES USED IN ELECTROCHEMICAL POWER SOURCE
18. *Binar, T., Kadlec, J., Rejzek, M., Vlkovský, M.*
EFFECT OF ENVIRONMENTAL TEMPERATURE ON THE BRITTLE-FRACTURE CHARACTERISTICS UNDER DYNAMIC LOADING AND ASSESSMENT OF DEFORMATION ON LOW-ALLOY STEEL DEVICES USED IN CONTAINERIZATION
19. *Tran, Q. D., Svoboda, E., Bartošík, P.*
ANALYSIS OF THE CONDITIONS OF SURFACE ROUGHNESS MEASUREMENTS ON STRATIFIED SURFACES BY OPTICAL AND INDUCTIVE METHODS
20. *Špinka, J.*
ACCUMULATORE MASS OBSERVATION IN ESEM

Electric vehicles

21. *Klíma, B., Hutak, P., Cipin, R., Knobloch, J., Nouman, Z., Vondrus, J.*
BATTERY MONITORING SYSTEM FOR THE AIRPLANE VUT 051 RAY
22. *Klíma, B., Červinka, D., Pazdera, I., Píštěk, A., Hlinka, J.*
BATTERY SYSTEM OF ELECTRIC AIRPLANE VUT 051 RAY
23. *Staňák, V., Bugár, M., Benkovský, P., Janíkovič, B.*
DESIGN OF ELECTRIC PROPULSION SYSTEM FOR A RACING CAR
24. *Vorel, P., Procházka, P., Minárik, V.*
POWERFUL FAST CHARGER 16KW FOR ELECTRIC VEHICLE

Information

For more information please contact us:

Doc. Ing. Marie Sedlářiková, CSc.
Department of Electrical and Electronic Technology
Brno University of Technology
phone: +420 5 4114 6143
e-mail address: sedlara@feec.vutbr.cz

Prof. Ing. Jiří Vondrák, DrSc.
Department of Electrical and Electronic Technology
Brno University of Technology
phone: +420 607 285 434
e-mail address: vondrakj@feec.vutbr.cz

Notes

Notes