

4th

ABA

BRNO 2003

Advanced Batteries and Accumulators

INTERNATIONAL CONFERENCE

Organised by:

Institute of Electrotechnology,
Faculty of Electrical Engineering and Communication,
Brno University of Technology

Institute of Inorganic Chemistry,
Academy of Science of Czech Republic, Řež near Prague

Organizing committee:
Doc. Ing. Jiří Vondrák, DrSc.
Ing. Marie Sedlaříková, CSc.



J. Vondrák: 9:00 - 9:15

Opening

Monday 9:30 - 12:00

Chairman: M. Green

New Aspects 100

J. Owen

Architecture of mesoporous electrode materials K Th 101

A. M. Skundin,
T. L. Kulova, Yu. E. Roginskaya,
F. Kh. Chibirova and B. Sh. Galyamov

Nanostructured (Sn, Ti)O₂ new material for negative electrode of lithium-ion batteries S Li 102

dr. S. Kulcsar, G. Feher

New type of carbon electrode S Li 103

M. Green, E. Fielder,
J. Stagg, B. Scrosati,
M. Wechtler and J. Moreno

Structured Silicon Anodes for Lithium Battery Applications S Li 104

K.- C. Möller, A. Hosseinmardi,
M. Winter, J. O. Besenhard

Film-Formation at Cathodes for Lithium Ion Batteries S Li 105

Monday 13:00 - 16:00

Chairman: A. Skundin

Lithium Batteries - I 200

H. J. Santner, C. Korepp, K.-C. Möller,
J. O. Besenhard, M. Winter

The Impact of Electrolyte Additives on the SEI Formation in Lithium Ion Batteries S Li 201

A. Trifonova, J. O. Besenhard,
and M. Winter

Infl. of red. prepar. cond. on the morph. and electrochem. perform. of nano-sized Sn/SnSb intermet S Li 202

P. Holzhauser,
K. Bouzek, M. Paidar

Permeability and morphology of polypyrrole films synthesized with various nucleophiles S Li 203

V. Barsukov, E. Il'yn,
V. Kryukov, E. Kryukova

Advanced Commercial and Experimental Grades of Graphite for Lithium-ion Batteries S Li 204

V. Barsukov, V. Khomenko,
P. Antonenko, L. Yatsuk

Rechargeable Metal-Air Batteries with Conductive Polymers Catalysts S Aq 205

16:30 organ concert, John Owen, Karel Micka

18:00 winerom

Tuesday 8:30 - 13:30

Chairman: J. Owen

Lithium Batteries - II
Gel Polymer Electrolytes - I 300

S. E. Smirnov, K. Y. Ilin,
A. A. Ogorodnikov

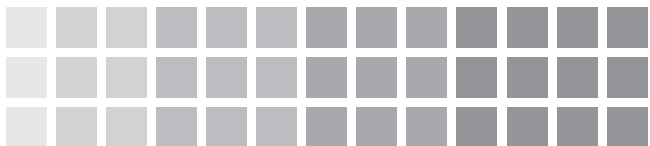
Lithium batteries with solid polymer electrolyte S Ge 301

M. R. Wagner, P. Raimann,
K.-C. Möller, J. O. Besenhard,
M. Winter

SEI Formation on Lithium Alloy Anodes studied by DEMS S Li 302

O. V. Chervakov, N. I. Globak,
K. E. Klyvnyk, E. M. Shembel, P. Novak

Polymer electrolytes for lithium power sources based on metal disulfides S Li 303



A. A. Evtukh, V. N. Plakhotnyk Use exhausted lithium batteries of system Li/LiBF₄ - (BL/(CF_x)_n) for reception electrolytes S Li 304

Chairman: K. C. Möller **Gel Polymer Electrolytes - II and Special Electrolytes** 400

O. V. Chervakov, N. I. Globa, V. V. Riabenko, O. V. Kolomoyets, K. A. Kotcuba, E. M. Shembel Quaternary ammonium salts in the composition of liquid and polymer electrolytes for lithium power sources S Ge 401

M. Mika, L. Gric, J. Vondrák, and B. Klápště High Proton Conducting Antimony Phosphate Glass S Gl 402

Fang-Shuo Chang, Ying-Chan Hsu and Kuo-Chuan Ho Dye-Sensitized TiO₂ Photoelectrochemical Cells Incorporating PMMA-based Gel Polymer Electrolytes S Ge 403

J. Reiter, J. Vondrák, F. Okepar, M. Sedlaříková, J. Velická, B. Klápště New reference electrode based on PMMA polymer electrolytes S Ge 404

K. Smékal, J. Mertl, M. Sedlaříková, J. Reiter, J. Vondrák Research of the gel polymer electrolytes S Ge 405

J. Vondrák, M. Sedlaříková, J. Reiter, J. Velická, B. Klápště, J. Michalek Gel polymer electrolytes new tool for non-aqueous electrochemistry S Ge 406

K. W. Leitner, M. Winter, J. O. Besenhard Composit supercapacitor electrodes S Ca 407

14:00 The Moravian Karst
Brewery Černá Hora

Wednesday 9:00 - 11:30

Chairman: K. H. Ho **Fuel Cells** 500

J. Vince, U. Lavrencic Stangar, A. Surca Vuk, V. Jovanovski, B. Orel ORMOSIL Proton Conducting Membranes for Fuel Cell Application S Fu 501

A. Havránek, K. Klafki, K. Wippermann Investigation of the proton conductivity in the DMFC anodes with thin catalyst layer S Fu 502

S. Moravcová, K. Bouzek, Z. Cilová Synthesis and characterisation of conducting polymer film on Nafion membrane S Fu 503

K. Bímová, S. Moravcová, K. Bouzek Transport properties of poly (2,6 - dimethyl - 1,4 - phenylenoxide) membranes at different degrees sulphonation S Fu 504

S. Moravcová, K. Bouzek, M. Paidar New type of membrane electrode assembly based on nafion membrane and polypyrrole S Fu 505

Wednesday 13:00 - 14:00

Chairman: J. Vondrák	Aqueous systems - I	600
Ying-Chan Hsu and Kuo-Chuan Ho	Improving Spectroelectrochemical Properties of Polyviologen Films through Electropolymerization with ferrocyanide	S EI 601
A. Surca Vuk, B. Orel, M. Liberatore, F. Decker	Ex-situ IR investigation of structural changes in sol-gel V_2O_5 films during charging/discharging	S EI 602
K. Micka	Contemporary trends in research and development of lead-acid batteries	SAq 603

14:30 - 16:30 Poster sesion

19:00 Concert of Vox Iuvenalis Choir
and Oregon State University Chamber Choir

Thursday 9:00 - 11:30

Chairman: M. Sedlářiková	Other Systems	700
V. Svoboda, A. Jossen, H. Doering, J. Garche	Small secondary batteries	S Aq 701
Doc. Ing. M. Cenek	Hybride cars	S 702
Kopczyk		S 703
J. Vondrák	Closing remarks	800



Posters:

J. Vaněk, J. Kazelle	Noise characteristic of solar cells under various illumination	P	Se
E. Shembel, A. Nosenko, A. Kvasha	Promising solid amorphous electrolyte with lithium ion conductivity based on $\text{Li}_2\text{O}-\text{Li}_2\text{SO}_4-\text{B}_2\text{O}_3$ systems	P	Li
G. Taralunga, E. M. Rus, D. M. Constantin	Cathodic active material for lithium batteries	P	Li
B. Szczesniak, Z. Brudka, S. Tabat, S. Styczynski	Electrochemical properties of the LAN type lithium electrodes in melted high-ionic salts of alkali metals	P	Li
P. Nečasal	Electrolytes for lithium batteries	P	Li
M. R. Wagner, K.-C. Möller, J. O. Besenhard, M. Winter	Influence of the Electrolyte Composition on the Capacity Fade of Lithium Alloy Anodes	P	Li
E. Shembel, R. Apostolova, V. Nagirny, V. Tsyachny and I. Kirsanova	Electrolytic oxides of transition metals in the anodes of lithium rechargeable batteries	P	Li
L. P. Paskal, L. P. Linets, A. T. Synyugina, V. A. Dusheyko, V. G. Syromyatnikov	Li-containing solid polymeric electrolytes based on alkyl-methacrylates	P	Ge
O. Krejza, T. Nováček, J. Vondrák, M. Sedlaříková	Specific conductivity of PMMA based gel electrolytes containing cadmium, magnesium or lithium salts	P	Ge
N. Furuya	Oxygen reduction on gas diffusion electrodes in alkaline solution	P	Fu
B. Lanova, H. Baltruschat	Methanol and CO Oxidation on Pt and Pt-colloid Catalysts for DMFC	P	Fu
J. Dvořák, T. Port, J. Vondrák, M. Sedlaříková	Hydrogen / oxygen fuel cells	P	Fu
S. Koten, P. Maršík	Study the electrochromic characteristics materials on complete electrochromic units	P	EI

F. Svegl, B. Orel	Layered $\text{LiNi}_{1-x}\text{Al}_x\text{O}_2$ and $\text{LiCo}_{1-x}\text{Al}_x\text{O}_2$ thin films as electrode materials for electrochromic devices	P	El
P. Huták, P. Vorel	A traction drive with a battery and ultracapacitor	P	Ca
K. Jurewicz, K. Babel	Activated carbons fabrics for supercapacitors	P	Ca
M. Kocian, J. Vondrák, M. Sedlaříková	Electrodes for the electrochemical supercapacitors	P	Ca
V. Branzoi, D. Mateescu, A. Mateescu, Florina Branzoi	Electrochemical Behaviour of Lead and Lead Alloys in Sulfuric Acid Solutions Subjected to Ultrasounds	P	Aq
I. Draskovic, S. Mentus, M. Pjescic	Electrode Reactions on Platinized Ebonex Powder in Halogenide Solutions	P	Aq
E. M. Rus, D. M. Constantin, G. Taralunga	Improvement of lead/acid battery performance by addition of phosphoric acid in electrolyte	P	Aq
D. M. Constantin, E. M. Rus, G. Taralunga	Characterisation of sintered nickel electrodes for alkaline batteries	P	Aq
P. Křivák, P. Bača	Study of the effects of compression on the performance of positive electrodes in lead-acid cells	P	Aq
P. Bača, P. Křivák	Study of the pressure changes of positive and negative electrodes in lead-acid cells	P	Aq
J. Merta, J. Bludská, I. Jakubec	Thin film li-ion batteries with carbon anode	P	Aq
W. Kohs, A. Gupper, F. Hofer, H. Schröttner, J. Doninger, I. Barsukov, J. H. Albering, J. O. Besenhard, M. Winter	Influence of subsurface structures of graphite on the anode performance in lithium - ion cells	P	Li
V. Novák, J. Vondrák	Bifunctional electrode for fuel cells	P	Fu
R. Ješe, V. Jovanovskí, B. Orel, A. Šurca Vuk, U. Lavrenčič Štangar	Hybrid electrochromic devices comprising a nanocomposite semisolid state sol-gel redox electrolyte with triethylene glycol or sulfolane co-solvents	P	El