

LABAT'2011 PROGRAMME

Tuesday, 7 June, 2011

CONFERENCE HALL 1

OPENING CEREMONY

- 08:30 **Welcome to delegates**
D. Pavlov, Chairman of LABAT'2011
- 08:40 **Welcoming address**
I. Karageorgiev, MONBAT Plc.

SESSIONS

Morning session (09:00 – 12:40)

Chairmen: *Dr. P.Moseley, Dr. L.Lam*
Secretary: *Dr. Al.Aleksandrova*

CARBON IN THE NEGATIVE PLATES

- 09:00 **Carbon in the negative plate of VRLA batteries - a key to partial state of charge cycling**
B.Monahov, P.Moseley, A.Cooper, ALABC, USA
- 09:25 **Carbon in lead-acid battery – structure and properties**
P.Atanassova, P.Kossyrev, G.Moeser, A.Kyrlidis, M.Oljaca, Cabot Corporation, USA
- 09:50 **Addition of carbon blacks with different structure to the negative active mass for improving the HRPSoC performance of lead-acid batteries**
P.Nikolov, T.Rogachev, D.Pavlov IEES, Bulg.Acad.Scis, Bulgaria
P.Atanasova, Cabot Corporation, USA
- 10:15 **Lead-carbon electrode in lead-acid batteries, operating at HRPSoC duty**
D.Pavlov, P.Nikolov, T.Rogachev, IEES, Bulg.Acad.Scis, Bulgaria
- 10:40 *C o f f e e b r e a k*
- 11:00 **Carbon honeycomb grids for advanced VRLAB negative plates**
A.Kirchev, N.Kircheva, M.Perrin, CEA, INES, France
- 11:25 **Carbon and graphite for lead-acid hybrid batteries. Electrochemical methods of testing at electrode level**
M.Fernández, N.Munoz, R.Nuno, F.Trinidad, Exide Technologies, Spain
- 11:50 **Investigation of the effect of mechanical pressure on the performance of negative lead accumulator electrodes during PSoC operation**
K.Micka, Heyrovsky Inst. of Physical Chemistry, Czech Republic
P.Baca, P.Krivik, K.Tonar, P.Toser, Brno University of Technology, Czech Republic
- 12:15 **Modifiable physical attributes of engineered, high-purity nano-structured carbon for lead-acid batteries**
A.Feaver, M.Maroon, EnerG2, Inc, USA
- 12:40 *L u n c h*

Tuesday, 7 June, 2011

CONFERENCE HALL 1

Afternoon session (14:00 – 18:25)

Chairmen: **Dr. A.Ferreira, Dr. J.Kowal**

Secretary: **Dr. Al.Aleksandrova**

CARBON IN THE NEGATIVE PLATES

14:00 **Lead-acid battery with reticulated vitreous carbon as a carrier and current collector**

A.Czerwinski, S.Obrebowski, J.Kotowski, Warsaw University, Poland

Z.Rogulski, Industrial Chemistry Research Institute, Poland

14:25 **Electrochemical behaviour of reticulated vitreous carbon-based positive electrode for lead-acid cells**

A.Czerwinski, **S.Obrebowski**, J.Kotowski, Warsaw University, Poland

Z.Rogulski, Industrial Chemistry Research Institute, Poland

14:50 **The use of a design of experiment approach to investigate the interactions of additives used in the making of the negative electrode in lead-acid batteries**

E.Ferg, C.Snyders, N.Mandela Metropolitan University, South Africa

15:15 **Electrochemical techniques to aid in the selection of appropriate additives for the negative plate in lead-acid battery**

S.Sen Gupta, D.Sarkar, S.Goswami, K.Adhikary, B.Chakrabarty,

S.C.Chalasani, Exide Industries Limited, India

15:40 *Coffee break*

16:00 **Effect of additives on the performance of negative lead-acid battery electrodes during partial state of charge**

P.Baca, **P.Krivik**, K.Tonar, P.Toser, Brno University of Technology, Czech Republic

K.Micka, J.Heyrovsky Insitute of Physical Chemistry, Czech Republic

LEAD-ACID BATTERY TECHNOLOGY

16:25 **Thermochemistry and reaction kinetics during paste mixing etc**

G.E.Mayer, Battery Technology Center Inc./Maxtech USA

16:50 **Additive Basics : Where, Why, When, Which**

G.E.Mayer, Battery Technology Center Inc./Maxtech, USA

17:15 **Morphology and properties of electrochemically obtained PbO₂ nanocrystals**

L.Yolshina, Urals Branch of Russ.Acad.Scis., Russia

A.Yolshin, Leader LAB Ltd., Russia

17:40 **Panel discussion**

Leaders: **Dr. P.Moseley, Dr. L.Lam**

Dr. A.Ferreira, Dr. J.Kowal

18:25 **Adjournment**

Wednesday, 8 June, 2011

CONFERENCE HALL 1

Morning session (08:30– 12:40)

Chairmen: **Prof. A.Czerwinski, Dr. J.Bauer**

Secretary: **Dr. P.Nikolov**

LEAD-ACD BATTERY TECHNOLOGY

- 08:30 **Microporosity in lead-acid positive plates. Its mechanistic origin in the production process**
C.D´Alkaine, Federal University of São Carlos, Brazil
P.R.Impinnisi, R.V.Palmer, LACTEC, Brazil
G.de O.Brito, Federal University of Espirito Santo, Brazil
- 08:55 **PbSO₄ as precursor for PAM electrodes**
M.Foudia, L.Zerroual, Université de Setif, Algeria
M.Matrakova, IEES, Bulgarian Academy of Sciences, Bulgaria
- 09:20 **Improvement of batteries by use of tetra basic seeds**
I.Klein, PENOX GmbH, Germany
A.Pradourat, STECO Power, France
- 09:45 **Materials for evolving lead-acid battery performance requirements as the world moves towards a greener planet.**
N.Clement, *G.Zguris, J.Wertz, A.Ashirgade*, Hollingsworth & Vose Co, USA
- 10:10 **Advanced valve technology for VRLA batteries**
K.Merz, *A.Dulska*, Abertax Technologies, Malta
- 10:35 *C o f f e e b r e a k*
- 11:00 **Automotive flooded lead-acid battery formation optimization**
K.Ravindranath, J.Chakrabarty, J.Albert, S.C.Chalasanj, Exide Industries Limited, India
- 11:25 **Equipment for the AGM battery production**
G.Semler, R.Jonach, BM Rosendahl, Austria
- 11:50 **Improving the PSoC operational capability of the AGM VRLA product**
D.Sen Chaudhuri, *P.N.Ghosh*, Exide Industry Limited, India
- 12:15 **Formation systems with acid recirculation technology the Inbatec design**
C.Papmahl, Inbatec GmbH, Germany
- POSTER** **Utilization problem of the lead-acid batteries in Poland**
E.Kaminska, R.Michalski, K.Sicinska, Motor Transport Institute, Poland
J.Merkisz, Poznan University of Technology, Poland
- 12:40 *L u n c h*

Wednesday, 8 June, 2011

CONFERENCE HALL 1

Afternoon session (14:00 – 17:45)

Chairmen: **Dr. B.Monahov, Dr. K.Smith**

Secretary: **Dr. P.Nikolov**

LEAD-ACID BATTERY TECHNOLOGY

- 14:00 **ULAB recycling: - breaking and separation the advantages of electrolyte recovery**
J.Simpson, Dross Engineering, France
- 14:25 **Electrochemical corrosion of mechanically deformed lead alloys**
M.C.Roma, *P.Mortel*, Philippine Batteries Inc., Philippines
M.Mena, University of the Philippines, Philippines
- 14:50 **ITE organic polymer activators for lead-acid batteries developed in Japan**
A.Kozawa, *J.C.Nardi*, International Exchange Association, Japan
F.Yamamoto, T.Nishina, K.Tachibana, Y.Ohba, Yamagata University, Japan
- 15:10 **Panel discussion**
Leaders: ***Prof. A.Czerwinski. Dr.J.Bauer***
Dr.B.Monahov, Dr. K.Smith
- 15:50 **Special presentation**
by **Geno Papazov**
- 15:10 *Coffee end*

Wednesday, 8 June, 2011

CONFERENCE HALL 2

Morning session (08:30– 12:40)

Chairmen: **Prof. I.Kazarinov, Dr. A.Kirchev**

Secretary: **Dr. B.Drenchev**

MODELLING OF LEAD-ACID BATTERY

- 08:30 **Interpretation of processes at positive and negative electrode by measurement and simulation of impedance spectra**
J.Kowal, H.Budde-Meiwes, D.U.Sauer RWTH Aachen University, Germany
- 08:55 **The discharge models of the positive electrode of the lead-acid battery**
M.Semenenko, The All-Russian Distance Institute of Finance and Economics, Russia
- 09:20 **Adaptive lead-acid battery modeling using RC method**
P.Amiri, V.Esfahanian, A.Jafari, University of Tehran, Iran
F.Torabi, K.N.Toosi University of Technology, Iran
Presented by V.Esfahanian
- 09:45 **New PbA battery modeling structure and validation capturing the Peukert effect**
S.Onori, Y.Guezennec, Ohio State University, USA
A.Manenti, Politecnico di Milano, Italy
- 10:10 **A transient, non-isothermal, fully coupled model for predicting the potential drop, temperature distribution and corrosion rate in lead-acid battery grids**
V.Esfahanian, P.Amiri, A.Jafari, University of Tehran, Iran
F.Torabi, K.N.Toosi University of Technology, Iran
- 10:35 *Coffee break*
- 11:00 **Modelling of VRLA batteries over operational temperature range using pseudo random binary sequences (PRBS)**
A.Fairweather, Vxl Power Ltd, UK
M.Foster, D.Stone, University of Sheffield, UK
- 11:25 **A general formulation for theoretical study of thermal runaway in batteries**
F.Torabi, K.N.Toosi University of Technology, Iran
V.Esfahanian, University of Tehran, Iran
Presented by V.Esfahanian
- 11:50 **Enhancing the electrolyte injection in lead-acid reserve batteries**
F.Torabi, K.N.Toosi University of Technology, Iran
S.M.Tabatabaee, A.Roozbeh Araqi, S.S.Tabatabaee, Tavan Avaran Sepahan Co., Iran
Presented by V.Esfahanian
- 12:15 *Lunch*

Wednesday, 8 June, 2011

CONFERENCE HALL 2

Afternoon session (14:00 – 15:50)

Chairmen: **Prof. I.Kazarinov, Dr. A.Kirchev**

Secretary: **Dr. B.Drenchev**

MODELLING OF LEAD-ACID BATTERY

- 14:00 **Parameterization of ISS battery for intelligent management system**
A.Roy, G.Mondal, A.Bandyopadhyay, A.Bhattacharyya, D.Mazumdar, S.Chalasan,
Exide Industries Limited, India
- 14:25 **Nature of contact corrosion layers on lead alloy: A study by impedance spectroscopy**
M.Burashnikova, I.Kazarinov, I.Zotova, Saratov State University, Russia
V.Yagnyatinsky, NIISTA, Russia
- 14:50 **Panel discussion**
Leaders: **Prof. I.Kazarinov, Dr. A.Kirchev**
- 15:20 **Adjournment**

Thursday, 9 June, 2011

CONFERENCE HALL 1

Morning session (08:30– 12:30)

Chairmen: **Prof. L.Zerroual, Dr. D.Prengaman**

Secretary: **Dr. V.Boev**

LEAD-ACID BATTERY OPERATION

- 08:30 **Recent advances in Thin Plate Pure Lead (TPPL) batteries for motive power applications**
***R.Kurian**, M.Pope, W.Coldrick, Enersys Ltd., UK*
- 08:55 **Detailed analysis and description of inhomogeneous ageing of flooded lead-acid batteries caused by acid stratification**
***D.Schulte**, D.U.Sauer, RWTH Aachen University, Germany
G.Langer, E.Cattaneo, B.Riegel, HOPPECKE Batterien GmbH, Germany*
- 09:20 **An on-board capacity estimation method for PbA battery**
*S.Onori, **Y.Guezennec**, Ohio State University, USA
P.Spagnol, Politecnico di Milano, Italy*
- 09:45 **Comparative impact of various mode of charge on the cycling life time of OPzS and OPzV batteries**
***S.Genies**, CEA, INES, France
*Presented by A. Kirchev**
- POSTER** **Passive mixing elements for electrolyte convection in flooded lead-acid batteries**
***E.Ebner**, A.Boerger, Volkswagen AG, Germany
M.Wark, Industrial Chemistry Ruhr-University, Germany
I.Koch, E.Meissner, J.Albers, Johnson Controls, Germany*
- 10:10 *C o f f e e b r e a k*
- 11:00 **Gaston Planté Medal ceremony**
Proclamation Gaston Planté Medal Commette
***Prof. Detchko Pavlov**, Chairman of LABAT'2011, IEES-BAS, Bulgaria
Prof. A. Popov, Vice President of the Bulg.Acad.Scis, Bulgaria*
Medal Acceptance Speech
***Dr. Lan Trieu Lam**, CSIRO Energy Technology, Australia*
Medal Acceptance Speech
***Mr. Keneth Peters**, Battery Consultant, United Kingdom*
- 12:30 *L u n c h*

Thursday, 9 June, 2011

CONFERENCE HALL 1

Afternoon session (14:00 – 18:25)

Chairmen: **Prof. A.Shukla, Dr. B.Riegel**

Secretary: **Dr. V.Boev**

LEAD-ACID BATTERY OPERATION

- 14:00 **Solid state reactions at metal/film/solution interfaces. The case of Pb/PbSO₄/H₂SO₄ interface**
C.D'Alkaine, Federal University of São Carlos, Brazil
L.L.M.de Souza, Energy Battery Accumulator Laboratory, Brazil
G. de O.Brito, Federal University of Espirito Santo, Brazil
- 14:25 **Development of advanced flooded ISS batteries for micro-hybrid application in tropical climate**
A.Chowdhury, *G.Mondal, A.Bhattacharyya, D.Mazumdar, B.Chakraborty*, Exide Industries Limited, India

Presented by A.Roy
- 14:50 **The review of VRLA battery concept**
S.Peng, Leoch International Technology Ltd., China
- 15:15 **Stationary batteries. Present and future**
A.I.Rusin, *L.Hegai, A.Kudryavtsev*, Baltic Energy Co., Russia
- 15:40 *Coffee break*
- 16:00 **A universal way for gas-liquid flow control in the design of hermetical lead-acid batteries.**
I.Kazarinov, *M.Burashnikova, N.Kadnikova*, Saratov State University, Russia
- 16:25 **Comparing performance of automotive lead acid batteries: application of Na₂So₄ in negative and positive electrode paste**
M.Salehriahi-Dehkordi, Isfahan University of Technology, Iran; Borna Battery Industrial Complex, Iran
A.Mehrabani-Zeinabad, S.N.Khorasani, Isfahan University of Technology, Iran
- 16:50 **Optical photorefractometer for measuring sulphuric acid concentration in lead-acid batteries**
G.Gajdatsy, FETI Kft., Hungary
- 17:15 **Panel discussion**

Leaders: **Prof. L.Zerroual, Dr. D.Prengaman**
Prof. A.Shukla, Dr. B.Riegel
- 18:00 **Adjournment**
- 19:00 **BANQUET**

Friday, 10 June, 2011

CONFERENCE HALL 1

Morning session (08:30– 13:05)

Chairmen: **Dr. H.Giess, Dr.S.Chalasan**

Secretary: **D.Ivanova**

BATTERIES AND SUPERBATTERIES FOR HEV

- 08:30 **Lightweight lead acid batteries for electric vehicle applications**
L.Wallis, University of Southampton, England
- 08:55 **A 12V/100 F substrate-integrated PbO₂-activated carbon hybrid ultracapacitor**
M.K.Ravikumar, E.Niranjana, A.Banarjee, A.Sundar Rajan, A.Jalajakshi,
A.K.Shukla, Indian Institute of Science, India
A.S.Naga Raj, S.A.Gaffoor, NED Energy Ltd., India
- 09:20 **Research of VRLA battery with lead-carbon electrode for electric bicycle**
D.L.Kong, *H.P.Tang, H.Li*, Shandong Sacredsun Power Sources Co., Ltd, China
S.N.Hua, Shandong University, China
- 09:45 **Dynamic charge acceptance of lead-acid batteries: comparison of methods for conditioning and testing**
H.Budde-Meiwes, *D.Schulte, J.Kowal, D.U.Sauer*, ISEA, RWTH Aachen University, Germany
R.Hecke, E.Karden, Ford Research and Advanced Engineering Europe, Germany
- 10:10 **Hybridization of lithium batteries in off-grid stationary applications (HYLIS)**
B.Riegel, *P.Nemec-Losert, K.Nikolowski*, HOPPECKE Batterien GmbH, Germany
W.Commerell, Hochschule Ulm, Germany
A.Zimmerman, Phocos AG, Germany
V.Späth, ZSW, Germany
- 10:35 *Coffee break*
- 11:00 **The use of a Polymat material to reduce the effects of sulphation damage occurring in negative electrodes due to the partial state of charge capacity cycling of lead acid batteries**
C.Snyders, *E.Ferg*, Nelson Mandela Metropolitan University, South Africa
T.van Dyl, Willard Batteries, South Africa
- 11:25 **Integrated high energy and power system including new generation BAT-CAP sources**
M.Mladenov, *S.Veleva*, IEES, Bulg.Acad.Scis., Bulgaria
V.Trenev, E.Petrov, Institute of System Engineering and Robotics, Bulg.Acad.Scis., Bulgaria
D.Kovacheva, Institute of General and Inorganic Chemistry, Bulg.Acad.Scis., Bulgaria
B.Tsyntsarski, N.Petrov, Institute of Organic Chemistry, Bulg.Acad.Scis., Bulgaria
- 11:50 **Panel discussion**
Leaders: **Dr. H.Giess, Dr.S.Chalasan**
- 12:20 **CLOSING CEREMONY**
- 12:30 *Lunch*