

**7<sup>th</sup> INTERNATIONAL CONFERENCE  
ON LEAD-ACID BATTERIES LABAT'2008  
9 - 12 June 2008, Varna, BULGARIA**



# PROGRAMME

**REGISTRATION:** Sunday, 8 June, 2008, 14:00 - 20:00  
Monday, 9 June, 2008, 09:00 - 13:00

**WELCOME COCKTAIL PARTY, sponsored by MONBAT Plc, Bulgaria:**  
GRAND HOTEL VARNA, Sunday, 8 June, 2008, 20:00

**Monday, 9 June, 2008**

**OPENING CEREMONY**

- 08:30 Welcome to delegates  
*D.Pavlov*, Chairman of LABAT'2008
- 08:40 Welcoming addresses

**Morning session (09:00 - 12:40)**

Chairmen: Prof. C.D'Alkaine, Dr. J.Pierson  
Secretary: Dr. D.Valkovska

**HEV BATTERIES. PROBLEMS AND SOLUTIONS**

- 09:00 1 The function of carbon in the negative plates of VRLA batteries exposed to high-rate partial-state-of-charge operation.  
*P.T.Moseley*, ILZRO, Durham, North Carolina, USA
- 09:25 2 Negative plate additives for improving HRPSoc operation of lead-acid batteries  
*P.Nikolov, G.Petkova, T.Rogachev, D.Pavlov*, IEES, Bulg.Acad.Scis. Sofia, Bulgaria
- 09:50 3 Study of graphite addition to negative active material of VRLA batteries to improve life under high-rate partial-state-of-charge working conditions  
*M.Fernandez, J.Valenciano, J.M.Lacadena, L.Sanz, F.Trinidad*, S.E.A Tudor S.A-Exide Technologies, Spain
- 10:15 4 Lead-acid batteries for partial-state-of-charge applications  
*B.Hariprakash*, Indian Institute of Science, Bangalore, India  
*S.A.Gaffoor*, NED Energy Ltd., Hyderabad, India  
*A.K.Shukla*, CECRI, Karaikudi, India
- 10:40 Coffee break
- 11:00 5 Study of doped negative VRLA battery electrodes  
*K.Micka*, J.Heyrovsky Institute of Physical Chemistry, Prague, Czech Republic  
*M.Calabek, P.Baca, P.Krivak, R.Labus, R.Bilko*, Brno University of Technology, Brno, Czech Republic
- 11:25 6 Thin Plate Pure Lead VRLA designs for fast charge motive power and HEV applications  
*R.Kurian, M.Pope, W.Coldrick*, EnerSys, Newport, UK
- 11:50 7 Influence of carbon based microcellular structures on the performance of Firefly Energy battery negative plates  
*B.Monahov, K.Kelley, M.Aikhateeb, R.McDuff*, Firefly Energy Inc., Peoria, IL, USA
- 12:15 8 Simulation of the current distribution in lead-acid batteries to investigate the dynamic charge acceptance in SLI batteries  
*J.Kowal, D.Schulte, D.U.Sauer*, ISEA, RWTH, Aachen, Germany  
*E.Karden*, Ford Research Center Aachen, Germany

12:40 Lunch

**Afternoon session (14:00 - 18:50)**

Chairmen: Prof. J.Morales, Prof. N.Hirai  
Secretary: Dr. D.Valkovska

**NOVEL TECHNOLOGIES FOR GRID PRODUCTION**

- 14:00 9 New continuous processes and alloys for production of positive grids  
*R.D.Pregaman, T.Ellis*, RSR Technologies, Inc., USA
- 14:25 10 Electrochemical behavior of thin layer of lead deposited on neutral matrix  
*A.Czerwinski, I.Paleska, M.Bodziachowska, J.Kotowski, M.Walczak, Sz.Obrebowski*, Warsaw University, Poland  
*Z.Rogulski*, Industrial Chem. Research Institute, Poland
- 14:50 11 Cutting lead cost by direct using scrap for grid making  
*T.Hofmann, H.Warlimont*, DSL Dresden Material-Innovation GmbH, Dresden, Germany
- 15:15 12 Influence of a surface structure on electrochemical behaviour of lead electrodes LAB  
*L.Yolshina, V.B.Malkov*, Institute of High-Temperature Electrochemistry, Ekaterinburg, Russia  
*A.N.Yolshin*, Leader-LAB.Ltd, Ekaterinburg, Russia
- 15:40 Coffee break
- 16:00 13 Study on the microstructure of different sites of cast ingot of lead calcium alloys  
*W.Guo, H.Li, H.Chen*, South China Normal University, China  
*M.Tang, H.Zhou, H.Wang, S.Peng, W.Weii*, Zhuzhou Smelter Group Co. Ltd, Zhuzhou, China
- 16:25 14 A study on corrosion of cast-on-strap alloy  
*A.Li, H.Chen*, South China Normal University, China  
*C.Dou, G.Xiao, S.Peng, W.Weii, H.Wang, W.Zhang, S.Chen*, Zhuzhou Smelter Group Co.,Ltd., Zhuzhou, China  
*Y.Zhao*, Shenyang Jugu Equipment Manufacturing Co., Ltd., Shenyang, China
- 16:50 15 Effect of temperature for the oxygen evolution reaction on the electrodes Pb-base alloys and PbO<sub>2</sub>  
*M.Sánchez-Pastén*, Instituto Politecnico Nacional, Dept. de Ingenieria Quimica Industrial, D.F. Mexico  
*J.M.Hallen-Lopez, E.M.Arce-Estrada*, Instituto Politecnico Nacional, Dept. de Metalurgia y Materiales, D.F. Mexico
- 17:15 16 New technologies to refine black lead and lead-antimony alloys  
*A.I.Rusin, L.D.Khegay, V.Serebryakov*, MUP „RUMA”, Komsomolsk-na-Amure, Russia
- 17:40 17 Anodic behavior of lead alloys in sulphate electrolytes  
*Ts. Dobrev, Y.Stefanov*, Rostislav Kaishev Institute of Physical Chemistry, Bulg.Acad.Scis., Sofia, Bulgaria  
*Iv.Valchanova, Sn.Magaeva*, University of Plovdiv „Paisii Hilendarski”, Plovdiv, Bulgaria
- 18:05 Panel Discussion. Leaders: Prof. C.D'Alkaine, Dr.J.Pierson, Prof. J.Morales, Prof. N.Hirai
- 18:50 Adjournment:

**Tuesday, 10 June, 2008**

**Morning session (08:30 - 12:40)**

**Chairmen: Dr. P.Moseley, Dr. V.Lembree**

**Secretary: P.Nikolov**

**NEW TECHNOLOGICAL PROCESSES  
FOR LEAD-ACID BATTERY PRODUCTION**

- 08:30 18 **Plates soaking prior formation and its influence on PAM phase composition and battery performance**  
**M.Foudia, L.Zerroual**, University Ferhat ABBAS Sétif, Algeria  
**M.Matrakova**, IEES, Bulg.Acad.Scis, Sofia, Bulgaria
- 08:55 19 **Preparation of thin electrodes using nanometric materials for VRLA batteries**  
**A.Caballero, M.Cruz, L.Hernan, J.Morales**, University of Córdoba, Cordoba, Spain  
**J. Valenciano**, Exide Technologies/Tudor SA, Spain
- 09:20 20 **Influence of H<sub>2</sub>SO<sub>4</sub>/(Pb<sub>3</sub>O<sub>4</sub> + leady oxide) ratio on the phase composition, structure and performance parameters of lead-acid battery positive plates**  
**G.Papazov, D.Pavlov**, IEES, Bulg.Acad.Scis, Sofia, Bulgaria
- 09:45 21 **Mechanism of micro/nanoporosity formation in lead acid negative plates.**  
**C.V.D'Alkaine, G.A. de O.Brito**, Federal University of Sao Carlos, Brazil
- 10:10 22 **Numerical simulation of electrolyte particle trajectory to investigate battery cover design characteristics**  
**V.Esfahanian, H.M.Darian, H.Babazadeh, M.Aghvami, R.Pasandeh**, University of Tehran, Iran  
**H.Abedinpour**, Niru Battery Manufacturing Co. Tehran, Iran
- 10:35 23 **Modified conductometric method for measurement of resistance of collector corrosion layer**  
**M.Calabek, P.Baca, R.Labus, P.Abraham**, Brno University of Technology, Brno, Czech Republic (POSTER)
- 10:35 *Coffee break*
- 11:00 24 **TBLS<sup>+</sup> Tetrabasic sulphate - a maturing technology**  
**I.Klein**, Penox GmbH, Cologne, Germany
- 11:25 25 **Pro-Ox curing technology**  
**C.Catelli**, Pompeo Catelli, Roma, Italy
- 11:50 26 **Formation systems with acid recirculation technology the Inbatec design**  
**C.Papmahl, F.Woeffler**, Inbatec GmbH, Hagen, Germany
- 12:15 27 **Small to medium sized lead-acid battery recycling plants: Tilting Rotary Furnaces as reduction units**  
**J.Simpson**, Dross Engineering, France

12:40 *Lunch*

**Afternoon session (14:00 - 18:50)**

**Chairmen: Prof. A.Czerwinski, Dr. Prengaman**

**Secretary: P.Nikolov**

- 14:00 28 **Reliability of the lead acid batteries: impact of the manufacturing process**  
**J.M.Lasserre**, Serma Technologies, Pessac, France
- 14:25 29 **Charge tracking, complete process control**  
**R.Jonach**, BM Battery Machines, Austria
- 14:50 30 **Lead and lead-acid battery industry in China**  
**H.Chen**, South China Normal University, Guangzhou, China
- 15:15 31 **Recovery of discarded sulfated lead-acid batteries**  
**H.Karami, R.Asadi**, Payame-Noor University, Iran
- 15:40 *Coffee break*

**CHARGE AND DISCHARGE PROCESSES. SOC AND SOH.  
BATTERY TESTS**

- 16:00 32 **New charging methods based on real time battery acceptance measurements allowing charge and de-stratification simultaneously for reduced charge time applications**  
**K.Mamadou, P.N'Guyer Ch.Glaize**, University Montpellier, France  
**E.Lemaire-Potteau**, INES RDI, Le Bourget du Lac, France  
**J.Alzieu**, Electricite De France R&D, Moret-sur-Loing, France
- 16:25 33 **Study of the "coup de fouet" phenomena occurring in the start of discharges and charges of lead-acid batteries. Experimental analysis**  
**A.Delaille, M.Perin**, INES - RDI, Le Bourget-du-Lac, France  
**F.Huet**, Pierre and Marie University, Paris, France
- 16:50 34 **State of charge estimation using a neural network cascade**  
**S.Vajda**, Furukawa Electric Institute of Technology, Budapest, Hungary
- 17:15 35 **Automatic device for continuous measurement of current distribution and acid stratification in flooded lead-acid batteries**  
**D.Schulte, T.Sanders, W. Waag, J.Kowal, D.U.Sauer**, ISEA, RWTH, Aachen University, Germany
- 17:40 36 **Advancements In power storage testing for HEV development**  
**R.Schaefer**, Bitrode Corporation, Fenton, USA

18:05 Panel Discussion. Leaders: **Dr. P.Moseley, Dr. V.Lembree**

**Prof. A.Czerwinski, Dr.Prengaman**

18:50 Adjournment:

## Wednesday, 11 June, 2008

### Morning session (08:30 - 12:30)

Chairmen: Prof. A.K.Shukla, Prof. A.Rusin

Secretary: P.Nikolov

- 08:30 37 **VRLA battery float service life estimation using a Kalman filter**  
*W.L.Burgess*, Eaton Powerware, Raleigh, USA
- 08:55 38 **Development of battery health monitoring system for standby lead-acid batteries**  
*S.Joshi*, Lalit Consulting Services, Bangalore, India  
*R.Jakkli, Y.Kulkarni*, Associated Powercon Equipment India Pvt. Ltd., Pune, India
- 09:20 39 **12V Battery - SOH degradation in the field. Analysis of 300 samples coming from Renault Clio II**  
*C.Hiron, W.Boegel, T. Vu Mai, C.Anis-Legay*, Renault Technocentre, Guyancourt, France
- 09:45 40 **Failure modes of valve-regulated lead-acid batteries in electric bicycle application**  
*Y.Guo, S.Tang*, Fuzhou University, Fuzhou, China  
*G.Meng, S.Yang*, Hubei Camel Storage Battery Co.Ltd., Gucheng, China
- 10:10 41 **Joint state of charge and state of health estimation for lead-acid battery**  
*E.Ramezani, M.S.Rahmanifar, A.Oweisi, S.A.Mousavi*, Niru Battery Manufacturing Co. Pasdaran, Tehran, Iran

10:35 *Coffee break*

11:00 **Gaston Plante Medal ceremony**



12:30 *Lunch*

### Afternoon session (14:00 - 18:50)

Chairmen: Prof. H.Chen, Dr.F.Mattera

Secretary: P.Nikolov

#### FUNDAMENTAL STUDY OF LAB PROCESSES

- 14:00 42 **Thermal behavior of small battery during closed oxygen cycle operation**  
*D.Valkovska, T.Todorov, M.Dimitrov, D.Pavlov*, IEES, Bulg.Acad. Scis., Sofia, Bulgaria
- 14:25 43 **Kinetics of PbO<sub>2</sub> electrodeposition from methanesulfonic solutions**  
*A.B.Velichenko, E.V.Gruzdeva, T.V.Luk'yanenko, F.I.Danilov*, Ukrainian State University of Chemical Technology, Dnepropetrovsk, Ukraine  
*R.Amadelli*, Universita di Ferrara, Ferrara, Italy
- 14:50 44 **PbO<sub>2</sub> electrodeposition from methanesulfonic electrolytes and physico-chemical properties of the resulting oxides**  
*R.Amadelli*, Universita di Ferrara, Ferrara, Italy  
*E.V.Gruzdeva, T.V.Luk'yanenko, A.B.Velichenko*, Ukrainian State University of Chemical Technology, Ukraine
- 15:15 45 **Pulse charge of the lead-acid battery negative plate - influence of state of charge and frequency on the reaction mechanism**  
*A.Kirchev, F.Mattera, E.Lemaire, K.Dong*, CEA-INES RDI, Laboratory of Solar Systems, France
- 15:40 *Coffee break*
- 16:00 46 **Influence of Mg,Al,Co,Sn and Sb on the structure of doped ?PbO<sub>2</sub>**  
*M.Matrakova, D.Pavlov*, IEES, Bulg.Acad.Scis., Bulgaria  
*N.Chahmana, L.Zerroual*, University Ferhat ABBAS, Algeria
- 16:25 47 **Influence of Mg<sup>2+</sup>, Al<sup>3+</sup>, Co<sup>2+</sup>, Sn<sup>2+</sup> and Sb<sup>3+</sup> on the electrical performance of doped ?PbO<sub>2</sub>**  
*N.Chahmana, L.Zerroual*, University Ferhat ABBAS, Algeria  
*M.Matrakova*, IEES, Bulg. Acad. Scis. Sofia, Bulgaria
- 16:50 48 **Behavior of lignosulfonate on electrochemical reaction on lead electrode in sulfuric acid solution**  
*N.Hirai, Y.Kimura*, Osaka University, Osaka, Japan  
*H.Vermesan*, Universitatea Tehnica Cluj-Napoca, Romania  
*S.Kubo, K.Magara*, Forestry and Forest Products Research Institute, Ibaraki, Japan
- 17:15 49 **Numerical simulation of acid stratification in lead-acid batteries**  
*V.Esfahanian, F.Torabi*, University of Tehran, Iran
- 17:40 50 **Improvement of lead-acid battery utilization through adaptive cut off voltage**  
*E.Ramezani, A.Oweisi, M.S.Rahmanifar, S.A.Mousavi*, Niru Battery Manufacturing Co., Tehran, Iran
- 18:05 Panel Discussion. Leaders: *Prof. Shukla, Prof. Rusin, Prof. Chen, Dr. Mattera*
- 20:00 *Banquet*

**Thursday, 12 June, 2008**

**Morning session (08:30 - 13:00)**

**Chairmen: Prof. Zerroual, Prof. Velichenko**

**Secretary: Dr. D.Valkovska**

**MODELING OF LEAD-ACID BATTERY PROCESSES**

- 08:30 51 **Visual modeling of electrochemical processes**  
**M.Semenenko**, Bauman Moscow State Technical University, Kaluga Branch, Kaluga, Russia
- 08:55 52 **Mixed model of lead-acid battery**  
**K.Untener, G.Gajdatsy, J.Kokavecz**, University of Szeged, Szeged, Hungary  
**T.Mihalfy, A.Kovats, N.Iwane**, FETI Ltd., Budapest, Hungary
- 09:20 53 **Critical analysis of experimental plate impedance**  
**P.R.Impinnisi, P.Mengarda**, Battery Laboratory, Institute of Technology for development, LACTEC, Curitiba, Brazil.  
**C.V.D'Alkaine**, Group of Electrochemistry and Polymers, Federal University of Sao Carlos, Brazil
- 09:45 54 **Advanced car battery design based on aesthetic and ergonomic elements**  
**A.Faraji**, Department of Industrial Design, University College of Fine Arts, University of Tehran, Tehran, Iran  
**A.H.Tehrani**, Department of Industrial Design, University College of Fine Arts, University of Tehran, Tehran, Iran
- 10:10 55 **Lead-acid battery industry in China**  
**Z.Wang**, Beijing University of Science and Technology, Beijing, China

10:35 *Coffee break*

**SOME NEW IDEAS**

- 11:00 56 **New chemical polymeric hydrogel-based current sources**  
**I.E.Suleimenov**, Institute of Ionosphere, Almaty, Kazakhstan  
**E.N.Suleimenov**, JSC Center of the Science of the Earth, Metallurgy and Ores Benefication, Almaty, Kazakhstan
- 11:25 57 **Flexible hybrid supercapacitor power system**  
**M.Mladenov, P.Zlatilova, S.Vassilev**, IEES, Bulg.Acad.Scis., Sofia, Bulgaria  
**N.Petrov**, Institute of Organic Chemistry, Bulg.Acad.Scis. Sofia, Bulgaria  
**K.Belov, V.Trenev**, Central Laboratory of Mechatronics and Instrumentation, Bulg.Acad.Scis., Sofia, Bulgaria  
**D.Kovacheva**, Institute of General and Inorganic Chemistry, Bulg.Acad.Scis., Sofia, Bulgaria
- 11:50 58 **Ion transport in battery in the presence of current**  
**F.Coupan, I.Marie-Joseph, A.Primerose, I.Sadli, H.Clergeot**, Renewable energy research laboratory, French Guiana
- 12:15 59 **Morphology and anodic polarization behavior of solid solution coatings of RuO<sub>2</sub> and TiO<sub>2</sub>**  
**M.Yousefpour**, Semnan University, Iran

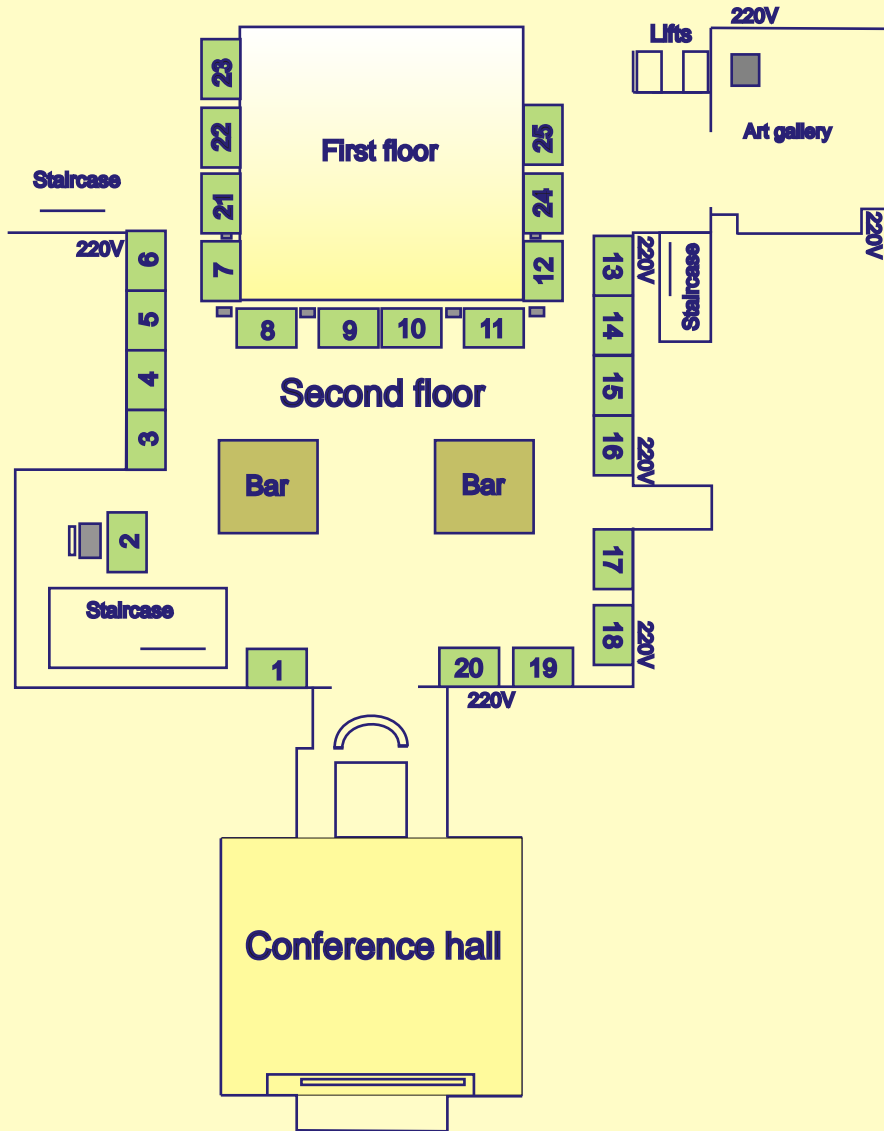
12:40 Panel Discussion. Leaders: **Prof. Zerroual, Prof. Velichenko**

13:00 **CLOSING CEREMONY**

13:10 *Lunch*



LABAT'2008  
 Exhibition  
 9 - 12 June, 2008  
 Grand Hotel VARNA, Varna, BULGARIA



### Exhibition layout

#### Stand No.

|  |    |
|--|----|
| ACCUMALUX S.A./LUXBAT S.A. (Luxembourg)            | 9  |
| ACCURATE Products (Denmark)                        | 1  |
| AKUMPLAST JSC (Bulgaria)                           | 14 |
| AMER-SIL S.A. (Luxembourg)                         | 16 |
| APPLIED ELECTRONICS LABS (Latvia)                  | 24 |
| BERTOLA S.N.C. (Italy)                             | 6  |
| BITRODE Corporation (USA)                          | 10 |
| BM-Battery Machines GmbH (Austria)                 | 17 |
| CEMT (Nanjing) Electrical Machines Co.,Ltd (China) | 21 |
| CMW Automation AG                                  | 25 |
| DARAMIC LLC (Germany)                              | 8  |
| DIGATRON Industrie-Elektronik GmbH (Germany)       | 4  |
| DROSS ENGINEERING SA (France)                      | 11 |
| FLOW-RITE CONTROLS (USA)                           | 13 |
| INBATEC GmbH, (Germany)                            | 18 |
| JIANGSU SANHUAN Ind.& Comm.Co. Ltd., (China)       | 15 |
| Maschinenfabrik Gustav EIRICH GmbH & Co KG         | 20 |
| MECONDOR S.p.A. (Italy)                            | 3  |
| MONBAT PLC (Bulgaria)                              | 19 |
| PENOX GmbH (Germany)                               | 12 |
| P.C. di POMPEO CATELLI (Italy)                     | 5  |
| SHINGANIA SERVICES (India)                         | 22 |
| SOVEMA S.p.A. (Italy)                              | 2  |
| WIRTZ Manufacturing Co. Inc. (UK)                  | 7  |
| Free stand   | 23 |