LABAT'2017 PROGRAMME

Tuesday, 13 June, 2017

OPENING CEREMONY

08:30 **Welcome to delegates**
G.Papazov, Scientific Secretary of LABAT'2017

08:40 **Welcoming addresses**

LABAT'2017 SESSIONS

Morning session (09:00 - 12:45)
Chairman: Dr. Timothy Ellis
Secretary: Dr. Albena Aleksandrova

LEAD-CARBON ELECTRODES

09:00 1 **Major research and development trends in the ILA/ALABC strategy**
B.Monahov, ILA/ALABC, USA

09:25 2 **Microstructure and electrochemical studies on carbon nanomaterial additives for positive active mass of industrial cells**
F.Trinidad, Exide Technologies S.L.U, Spain
A.Larrea, A.Orera, Instituto de Ciencia de Materiales de Aragón, Spain
H.Niepraschk, Exide Technologies Operations GmbH & Co., Germany

09:50 3 **Carbon additives in advanced lead-acid batteries– solutions and opportunities**
P.Atanassova, *A.Du Pasquier, M.Oljaca,* Cabot Corporation, USA
P.Nikolov, M.Matrakova, D.Pavlov, IEES-BAS, Bulgaria

10:15 *Coffee/Tea break with Exhibition and Poster Viewing*

11:00 4 **Effects of surface chemistry of carbon on hydrogen evolution reaction in lead-carbon electrodes**
B.Bozkaya, *J.Settelein, H.Lorrmann, G.Sextl*, Fraunhofer Institute for Silicate Research, Germany

11:25 5 **Carbons for advanced lead acid batteries: properties and role**
D.Cericola, *M.Spahr,* Imerys Graphite and Carbon, Switzerland

11:50 6 **Electrochemical evaluation of lead-carbon electrodes for micro hybrid vehicle applications**
M.Blecua, *E.Fatás, P.Ocón,* Universidad Autónoma de Madrid, Spain
J.Valenciano, F.de la Fuente, F.Trinidad, Exide Technologies, Spain

Exhibitioner's presentations

12:15 6.1 Inbatec GmbH, Germany
12:25 6.2 Shandong Jinkeli Power Sources Technology Co., Ltd., China
12:35 6.3 CMWTEC Technologie GmbH, Germany

12:45 *L u n c h*

Afternoon session (14:00 - 18:20)
Chairman: Prof. Carlos DÁlkaine
Secretary: Dr. Plamen Nikolov

14:00 7 **Surface modifications of carbon additives for reducing hydrogen evolution**
A.Du Pasquier, *A.Korchev, D.Miller, B.Merritt, P.Atanassova,* Cabot Corporation, USA

14:25 8 **Carbon's impact on active material utilization in advanced lead-acid batteries using thin plate technology**
J.Lannelongue, *A.Kirchev, M.Cugnet,* CEA-INES, France

14:50 9 **How to develop best carbon/graphite products for lead-carbon battery applications**
J.Li, F.Henry, Y.Feng, Superior Graphite, USA

Exhibitioner's presentations

15:15 9.1 TBS Canada Inc., Canada
15:25 9.2 TC Machinery Co., Ltd., Taiwan
15:35 9.3 Imerys Graphite & Carbon, Switzerland
15:45 9.4 STC SrL., Italy

15:55 *Coffee/Tea break with Exhibition and Poster Viewing*

16:40 10 **MOLECULAR REBAR® discrete carbon nanotubes for lead-acid batteries**
J.Meyers, P.Everill, S.Swogger, N.Sugumaran, Black Diamond Structures, USA

17:05 11 **Carbon enhanced VRLA battery for frequency regulation in energy storage system**
J.Xiang, J.Chen, P.Ding, Narada Power Source Co, China

Exhibitioner's presentations

17:30 11.1 Sistem Makina, Turkey
17:40 11.2 Amer-Sil S.A., Luxembourg
17:50 11.3 Accuma S.p.A., Italy
18:00 11.4 Jiangsu CEMT Energy Equipment Co.,Ltd.,China
18:10 11.5 ACCUMALUX S. A., Luxembourg

18:20 *Adjournment*

Wednesday, 14 June, 2017

Morning session (08:30 - 12:40)
Chairman: Dr. Boris Monahov
Secretary: Ognyan Dimitrov

08:30 19 **Performances of lead-carbon electrode based on rice-husk-derived carbon under partial state of charge operation**
W.Zhang, *H.Lin, Zh.Lin, J.Yin, J.Shi, C.Wang, D.Liu, Y.Wang, J. Bao*, Jilin University, China
H.Lu, Guangdong Guanghua Sci-Tech Co., Ltd., China
Y.Wang, H.Li, Jilin kaiyu Electrochemical Energy Storage Technologies Development Co., Ltd., China

08:55 20 **Nano structured reduced graphene oxide (RGO) coated TiO_2 as negative electrode additive for advanced lead-acid batteries**
N.Vangapally, *S.Jindal, S.K.Martha,* Indian Institute of Technology, India
A.Gaffoor, NED Energy Ltd., India

09:20 22 **Elementary processes taking place during charge and discharge of lead-acid batteries**
D.Pavlov, (Presented by P.Nikolov), IEES-BAS, Bulgaria

Exhibitioner's presentations

09:45 22.1 Abertax Technologies Ltd., Malta
09:55 22.2 Engitec Technologies S.p.A, Italy
10:05 22.3 Arexim Engineering EAD, Bulgaria

10:15 *Coffee/Tea break with Exhibition and Poster Viewing*

11:00 ***GASTON PLANTÉ MEDAL CEREMONY***

12:40 *Lunch*

Afternoon session (14:00 - 18:05)
Chairman: Dr. Francisco Trinidad
Secretary: Dr. Antonia Stoyanova

LEAD-ACID BATTERY ACTIVE MASSES

14:00 23 **Gas evolution, recombination and grid corrosion in a VRLA battery under high temperature operating conditions**
S.Chalasani, East Penn Manufacturing Co., Inc., USA

14:25 24 **A third stable potential in lead-acid batteries**
C.D'Alkaine, F.Plut, H.R.de Freitas, Federal University of Sao Carlos, Brazil

14:50 25 **Electroreduction kinetics of lead sulfate in lead-acid battery negative electrode**
Y.Hamano, *I.Ban, K.Hirakawa, Y.Yamaguchi,* GS Yuasa International Ltd., Japan

15:15 26 **In-situ X-ray study of lead sulfation in sulfuric acid environment**
L.Chladil, P.Vanysek, O.Cech, P.Baca, Brno University of Technology, Czech Republic

15:40 *Coffee/Tea break with Exhibition and Poster Viewing*

16:25 28 **Addition effects of aluminum or magnesium ions on the electrochemical behavior of lead electrode in sulfuric acid solution with potassium sulfate**
H.Hirai, K.Kawakiuta, Y.Yamamoto, National Institute of Technology, Japan

16:50 29 **Effect of novel ZnO additive on the performance of lead-acid battery negative electrodes**
A.Aleksandrova, P.Nikolov, M.Matrakova, St.Ruevski, D.Pavlov, IEES-BAS, Bulgaria
M.Markoiva-Velichkova, D.Kovacheva, Institute of Inorganic Chemistry, BAS, Bulgaria

17:15 30 **Combined effect of fibrous structures and other additives in NAM**
J.Zimakova, P.Vanysek, S.Vaculik, P.Baca, P.Cudek, Brno University of Technology, Czech Republic

17:40 *Adjournment*

19:00 *GALA BANQUET*
Meeting point: Hotel International

Thursday, 15 June, 2017

Morning session (08:30 - 12:15)
Chairman: Dr. Herbert Giess
Secretary: Dr. Plamen Nikolov

LEAD-ACID BATTERY ACTIVE MASSES

08:30 38 **Effect of cured PAM density and amount of tribasic lead sulfate on utilization and deep cycling ability of positive plate in lead-acid battery**
A.Nishimura, M.Matsushita, J.Furukawa, Furukawa Battery Co., Ltd, Japan

08:55 39 **Seeing inside lead-acid batteries using neutron imaging**
J.M.Campillo Robles, D.Soler, Mondragon University, Spain
D.Goonetilleke, N.Sharma, School of Chemistry, UNSW, Australia
U.Garbe, Australian Nuclear Science and Technology Organisation, Australia
P.Türkyilmaz, Yiğit Akü Malzemeleri A.Ş., Turkey

09:20 40 **Investigation of acid stratification in lead-acid batteries**
A.Hammouche, J.Bauer, S.Goertler, Johnson Controls Power Solutions EMEA, Germany

09:45 41 **Enhanced deep cycle life performance for gel VRLA batteries**
A.Grigas, A.Azaibi, H.Niepraschk, Exide Technologies GmbH, Germany
F.Trinidad, Exide Technologies S.L.U., Spain

10:10 *Coffee/Tea break with Poster Viewing*

10:35 42 **Expander for standard and new battery applications. Start-Stop and HEV**
M.Fernandez, L.Pucket, C.Barreneche, North American Company APG, USA

11:00 43 **On the electrochemical activity of beta-lead dioxide in sulfuric acid solution: a comparative study between the chemical and electrochemical routes**
I.Derafa, L.Zerroual, University Ferhat ABBAS, Algeria
M.Matrakova, IEES-BAS, Bulgaria

11:25 44 **Effect of glycine incorporated leady oxide and non-conventional nanostructured additives on the performance of lead acid battery**
S.Mayavan, S.M.Kumar, S.Arul, C.Arun, V.Muthumani, Central Electrochemical Research Institute, India

11:50 45 **Application of silica sol in energy storage batteries**
T.Ban, G.Cao, W.Liu, Shandong Jinkeli Power Sources Technology Co., Ltd., China
S.Hua, Shandong University, China

12:15 *L u n c h*

Afternoon session (14:00 – 18:15)
Chairman: Dr. Paolina Atanasova
Secretary: Dr. Maria Matrakova

LEAD-ACID BATTERY TECHNOLOGY

14:00 46 **Experience with a new filling process for VRLA batteries in GEL technology**
K.D.Merz, J.Cilia, Abertax Technologies, Malta

14:25 47 **Formation with acid recirculation technology – the Inbatec process**
Ch.Papmahl, Inbatec, Germany

14:50 48 **Novel technology for production of lead-acid batteries by application of low energy impact technology (LEIT)**
B.Shirov, TASC, Bulgaria
V.Naidenov, IEES-BAS, Bulgaria

15:15 49 **Design and manufacturing criteria for high-performance, low-cost, large-format bipolar lead batteries**
E.O.Shaffer II, Advanced Battery Concepts, USA

15:40 *Coffee/Tea break with Poster Viewing*

16:10 50 **Design, development and commercialization of new gas recombination vent plug for lead-acid batteries**
S.Joshi, Greenvision Technologies Pvt. Ltd, India
M.Hegde, Indian Institute of Sciences, India

16:35 51 **New separator approaches for lead-acid batteries**
R.Waterhouse, C.La, M.Warren, J.Kim, D.Wandera, J.Frenzel, J.Norris, D.Lee, C.Rogers, E.Hostetler, R.W.Pekala, ENTEK International LLC, USA

17:00 52 The quality control during the lead-acid battery assembly production
Y.Chen, Jiangsu CEMT Energy Equipment Co., Ltd, China

17:25 53 **Closed-loop predictive control for adherence to the commanded energy exchange with a VRLA battery**
G.Kujundžić, Public Enterprise Croatian Telecom JSC, Bosnia and Herzegovina
M.Vasak, University of Zagreb, Croatia

17:50 78 **Present status of lead-rare earth alloys used in lead-acid batteries in China**
R.Zhao, H.Chen, South China Normal University, China
T.Zhang, H.Zhao, Z.Guo, Tianneng Battery Group Company, China

18:15 *Adjournment*

Thursday, 15 June, 2017
HALL 2

Afternoon session (14:00 – 17:00)
Chairman: Dr. Eberhard Meissner
Secretary: Ognian Dimitrov

LEAD-ACID BATTERY MODELLING

14:00 63 **Method for monitoring of a lead-acid cells operating in continuous charge mode at a constant voltage and rapid diagnosis of the main operating parameters in the emergency power systems**
A.Aleshkin, Y.Bubnov, V.Ruzhnikov, AC Buster Ltd., Russia
V.Yagnyatinsky, NIISTA Jsc, Russia

14:25 64 **Empirical sulfation model for VRLA Batteries under cycling operation**
M.Franke, J.Kowal, Technical University Berlin, Germany

14:50 65 **One-dimensional simulation of lead-acid cell using spectral method**
J.Vashahri, V.Esfahanian, University of Tehran, Iran

15:15 66 **Uncertainty quantification and sensitivity analysis of lead-acid batteries**
H.Dehghandorost, V.Esfahanian, F.Chaychizadeh, University of Tehran, Iran

15:40 *Coffee/Tea break with Poster Viewing*

16:10 67 **Three-dimensional numerical simulation of lead-acid** battery
V.Esfahanian, H.Afshari, A.Pouyaei, A.B.Ansari, University of Tehran, Iran

16:35 68 **Unsupervised reduce order modeling of lead-acid battery using Markov chain model**
A.A.Shahbazi, V.Esfahanian, University of Tehran, Iran

17:00 *Adjournment*

Friday, 16 June, 2017

Morning session (08:30 - 13:30)
Chairman: Dr. Shashikan Joshi
Secretary: Dr. Iovka Milusheva

LEAD ALLOYS

08:30 74 **Novel lead-graphene and lead-graphite metallic composite materials for neg ative electrode grid of lead-acid battery**
L.Yolshina, A.Yolshina, Institute of High-Temperature Electrochemistry, Russia
A.Yolshin, Graphene Ltd., Russia

08:55 75 **The microstructural and morphological development of a Micro-Alloyed Soft Pb, SUPERSOFT-HYCYCLE®, for cycling applications**
M.Raiford, T.Ellis, RSR Technologies, USA

09:20 76 **On the electrochemical behaviour of Pb-Sb-Se alloy in sulfuric acid solution: effect of surfactants**
O.Saoudi, L.Zerroual, University Ferhat ABBAS, Algeria
M.Matrakova, A.Aleksandrova, IEES-BAS, Bulgaria

09:45 77 **Electrochemical evaluation of Pb-0.04%Ca-1.2%Sn-Sr for positive grid of lead-acid batteries**
A.Alagheband, Islamic Azad University, Iran
A.Kosari, M.Azimi, Fedowsi University of Mashhad, Iran
D.Nakhaie, The University of British Columbia, Canada
M.Kalani, University of Birjand, Iran

10:10 *Coffee/Tea break with Poster Viewing*

BATTERY RECYCLING

10:30 79 **New route for secondary lead recycling, industrial plant experience from exhausted batteries to new ones**
G.Fusillo, F.Scura, R.Guerriero, G.La Sala, STC SrL, Italy
D.Rosestolato, SIA Industria Accumulatori S.p.A., Italy

10:55 80 **Hydrometallurgy from the lab to industry: green, sustainable and superior**
A.Fox, M.Freeman, Aurelius Environmental, UK
R.Kumar, The University of Cambridge, UK

11:05 81 **Modern methods of disposal for lead-acid batteries**
A.Rusin, A.Kudryavtsev, O.Moroz, Baltic Energy Company, Russia

11:30 82 **Recovery methods of lead batteries**
A.Kudryavtsev, A.Rusin, O.Moroz, Baltic Energy Company, Russia

12:00 ***CLOSING THE CONFERENCE***

12:15 *L u n c h*