# LABAT’2017 PROGRAMME

**Tuesday, 13 June, 2017**

## OPENING CEREMONY

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Welcome to delegates</td>
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<tr>
<td></td>
<td><em>G.Papazov</em>, Scientific Secretary of LABAT’2017</td>
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<tr>
<td>08:40</td>
<td>Welcoming addresses</td>
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</tbody>
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## LABAT’2017 SESSIONS

### Morning session (09:00 - 12:45)

**Chairman:** Dr. Timothy Ellis  
**Secretary:** Dr. Albena Aleksandrova

#### LEAD-CARBON ELECTRODES

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
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<tbody>
<tr>
<td>09:00</td>
<td>1 Major research and development trends in the ILA/ALABC strategy</td>
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<tr>
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<td><em>B.Monahov</em>, ILA/ALABC, USA</td>
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<tr>
<td>09:25</td>
<td>2 Microstructure and electrochemical studies on carbon nanomaterial additives for positive active mass of industrial cells</td>
</tr>
</tbody>
</table>
|       | *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  |

**Exhibition’s presentations**

<table>
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<tr>
<th>Time</th>
<th>Exhibitors</th>
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<tr>
<td>12:15</td>
<td>Inbatec GmbH, Germany</td>
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<tr>
<td>12:25</td>
<td>Shandong Jinkeli Power Sources Technology Co., Ltd., China</td>
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<tr>
<td>12:35</td>
<td>CMWTEC Technologie GmbH, Germany</td>
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<td>12:45</td>
<td>Lunch</td>
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### 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.Aatanassova, 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 TiO₂ 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Company/Location</th>
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<tbody>
<tr>
<td>09:45</td>
<td>22.1</td>
<td>Abertax Technologies Ltd., Malta</td>
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<td>09:55</td>
<td>22.2</td>
<td>Engitec Technologies S.p.A, Italy</td>
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<tr>
<td>10:05</td>
<td>22.3</td>
<td>Arexim Engineering EAD, Bulgaria</td>
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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

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
<th>Authors/Institution</th>
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<tbody>
<tr>
<td>14:00</td>
<td>23 Gas evolution, recombination and grid corrosion in a VRLA battery under high temperature operating conditions</td>
<td>S.Chalasani, East Penn Manufacturing Co., Inc., USA</td>
</tr>
<tr>
<td>14:25</td>
<td>24 A third stable potential in lead-acid batteries</td>
<td>C.D’Alkaine, F.Plut, H.R.de Freitas, Federal University of Sao Carlos, Brazil</td>
</tr>
<tr>
<td>14:50</td>
<td>25 Electroreduction kinetics of lead sulfate in lead-acid battery negative electrode</td>
<td>Y.Hamano, I.Ban, K.Hirakawa, Y.Yamaguchi, GS Yuasa International Ltd., Japan</td>
</tr>
<tr>
<td>15:15</td>
<td>26 In-situ X-ray study of lead sulfation in sulfuric acid environment</td>
<td>L.Chladil, P.Vanysek, O.Cech, P.Baca, Brno University of Technology, Czech Republic</td>
</tr>
<tr>
<td>15:40</td>
<td>Coffee/Tea break with Exhibition and Poster Viewing</td>
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<tr>
<td>16:25</td>
<td>28 Addition effects of aluminum or magnesium ions on the electrochemical behavior of lead electrode in sulfuric acid solution with potassium sulfate</td>
<td>H.Hirai, K.Kawakiuta, Y.Yamamoto, National Institute of Technology, Japan</td>
</tr>
<tr>
<td>16:50</td>
<td>29 Effect of novel ZnO additive on the performance of lead-acid battery negative electrodes</td>
<td>A.Aleksandrova, P.Nikolov, M.Matrakova, St.Ruevski, D.Pavlov, IEES-BAS, Bulgaria</td>
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<td>M.Markoiva-Velichkova, D.Kovacheva, Institute of Inorganic Chemistry, BAS, Bulgaria</td>
</tr>
<tr>
<td>17:15</td>
<td>30 Combined effect of fibrous structures and other additives in NAM</td>
<td>J.Zimakova, P.Vanysek, S.Vaculik, P.Baca, P.Cudek, Brno University of Technology, Czech Republic</td>
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<td>17:40</td>
<td>Adjournment</td>
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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, Yığit 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 ABBA, 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.Arun, 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  Lunch

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

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

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.Dehghan dorost, V.Esfahanian, F.Chaychizadeh, University of Tehran, Iran

15:40  Coffee/Tea break with Poster Viewing
### Friday, 16 June, 2017

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

#### LEAD ALLOYS

<table>
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| 08:30 | Novel lead-graphene and lead-graphite metallic composite materials for negative electrode grid of lead-acid battery  
*L. Yolshina, A. Yolshina, Institute of High-Temperature Electrochemistry, Russia  
A. Yolshin, Graphene Ltd., Russia* |
| 08:55 | The microstructural and morphological development of a Micro-Alloyed Soft Pb, SUPERSOFT-HYCYLE®, for cycling applications  
*M. Raiford, T. Ellis, RSR Technologies, USA* |
| 09:20 | 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 | 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

<table>
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| 10:30 | 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 | 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 | Modern methods of disposal for lead-acid batteries  
*A. Rusin, A. Kudryavtsev, O. Moroz, Baltic Energy Company, Russia* |
| 11:30 | Recovery methods of lead batteries  
*A. Kudryavtsev, A. Rusin, O. Moroz, Baltic Energy Company, Russia* |

12:00 CLOSING THE CONFERENCE

12:15 Lunch