Proceedings of
2nd International Conference on
RENEWABLE ENERGY & RESOURCES
&
ENERGY MATERIALS & FUEL CELL RESEARCH
August 27-28, 2018 | Boston, USA

SPONSORS
### Day 1  August 27, 2018

**Conference Hall: Charles Ballroom A**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00-09:00</td>
<td>Registrations</td>
</tr>
<tr>
<td>08:30-08:50</td>
<td>Opening Ceremony &amp; Introduction</td>
</tr>
<tr>
<td>08:50-09:20</td>
<td><strong>Keynote Forum</strong></td>
</tr>
</tbody>
</table>
| 08:50-09:00 | Title: Recent advances in wind turbine technologies and sensing for structural health monitoring  
Christopher Niezrecki, University of Massachusetts Lowell, USA |
| 09:20-10:00 | Title: PV as a major contributor to the 100% renewably powered world  
Winfried Hoffmann, Applied Solar Expertise – ASE, Germany |
| 10:00-10:30 | Title: Carbon nanofiber aggregate sensors for sustaining resilience of nuclear power plants to multi-hazards  
Yi-Lung Mo, University of Houston, USA |
| 10:40-11:00 | Networking & Refreshment Break @ Foyer                                  |
| 11:00-11:25 | Title: Food and food processing waste to energy: Sustainable energy for Western NY  
Jeff Lodge, Rochester Institute of Technology, USA |
| 11:25-11:50 | Title: Landscape design strategies for sustainable biomass feedstock supplies  
Douglas L Karlen, USDA-Agricultural Research Service, USA |
| 11:50-12:15 | Title: Renewable Revolution: Geothermal Heat Pumps are substantially changing the renewable landscape with thermal energy  
Willem Lange, WaterFront International, USA |
| 12:15-12:40 | Title: Novel hybrid-powered standalone autonomous unmanned aerial vehicle (UAV) ground base station  
Evangelos I Gkanas, Coventry University, UK |
| 12:40-13:05 | Title: Community driven initiative to reduce fossil fuel consumption for environmental protection and associated economic benefits  
Sardar Ahsan Younus, USAID-Pakistan Energy Office, Pakistan |
| 13:05-14:00 | Lunch Break @ Foyer                                                      |
| 14:00-14:25 | Round table Core Discussion                                              |
| 14:25-14:50 | Title: Viscosity modeling and flow properties of non-edible oils as feed-stocks in biodiesel production  
Kenneth Okafor, South Carolina State University, USA |
| 14:50-15:15 | Title: Pt nanoparticles onto carbon base substrates as anodic materials for direct alcohol fuel cells  
Beatriz Ruiz Camacho, Guanajuato University, Mexico |
| 15:15-15:40 | Title: Controlled selectivity via kinetic resolution with transient operation  
Javier Fernandez-Garcia, University of Leeds, UK |
| 15:40-16:00 | Networking & Refreshment Break @ Foyer                                  |
| 16:00-16:25 | Title: Thermal performance of the latent heat storage units with aluminium porous structures  
Krzysztof Naplocha, Wroclaw University of Science and Technology, Poland |
| 16:25-16:50 | Title: From waste treatment to resource recovery: A Chicago Sustainability story  
Kuldip Kumar, Metropolitan Water Reclamation District of Greater Chicago, USA |
| 16:50-17:15 | Title: Effect of storage time on the properties of seeds, oil and biodiesel from Reutealis trisperma  
M Yusuf Abduh, Bandung Institute of Technology, Indonesia |
| 17:15-17:30 | Panel Discussion                                                         |
Day 2  August 28, 2018

Conference Hall: Charles Ballroom A

Keynote Forum

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00-09:30</td>
<td>Title: Microstructural design in hydrogen fuel generation and storage</td>
<td>Jerzy A Szpunar, University of Saskatchewan, Canada</td>
<td></td>
</tr>
<tr>
<td>09:30-10:00</td>
<td>Title: Enabling cost effective hydrogen at low temperatures</td>
<td>Sanjeev Mukerjee, Northeastern University, USA</td>
<td></td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>Title: U S Department of Energy Hydrogen and Fuel Cell Technology perspectives</td>
<td>Eric L Miller, U.S. Department of Energy, USA</td>
<td></td>
</tr>
</tbody>
</table>

Panel Discussion 10:30-10:40

Networking and Refreshment Break 10:40-11:00 @ Foyer

Young Research Forum


Session Chair: Jerzy A Szpunar, University of Saskatchewan, Canada

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00-11:20</td>
<td>Title: Selection and stability investigations of polymers for latent heat storages</td>
<td>Helena Weingrill, Montanuniversitaet Leoben, Austria</td>
<td></td>
</tr>
<tr>
<td>11:20-11:40</td>
<td>Title: Nano-structural design of 0D, 1D, 2D, 3D nanoparticles for energy storage devices: Supercapacitor applications</td>
<td>Hasi Rani Barai, Yeungnam University, South Korea</td>
<td></td>
</tr>
<tr>
<td>11:40-12:00</td>
<td>Title: Analysis of wind energy potential: A case study of Kocaeli University Campus</td>
<td>Ipek Caglayan, Kocaeli University, Turkey</td>
<td></td>
</tr>
<tr>
<td>12:00-12:20</td>
<td>Title: The development of Sorghum bran based bio-refinery process</td>
<td>Oyenike Makanjuola, University of Huddersfield, UK</td>
<td></td>
</tr>
<tr>
<td>12:20-12:40</td>
<td>Title: The effect of different catalyst layer porosity on proton exchange membrane fuel cells</td>
<td>Anil Can Turkmen, Kocaeli University, Turkey</td>
<td></td>
</tr>
<tr>
<td>12:40-13:00</td>
<td>Title: Thermal properties improvement of column structures formed by nickel nano-materials in paraffin wax</td>
<td>Che-Fu Su, University of Massachusetts Lowell, USA</td>
<td></td>
</tr>
</tbody>
</table>

Lunch Break 13:00-14:00 @ Foyer

14:00-14:20  Title: Spatial agent-based modeling for dedicated energy crop adoption and cellulosic biofuel commercialization | Enze Jin, Purdue University, USA |

14:20-14:40  Title: Biogas a viable untapped alternative energy for abattoirs of Dar es Salaam | Ahmed Lubwama, The Open University of Tanzania, Tanzania |

Panel Discussion 14:40-14:50


Session Chair: Eric L Miller, U.S. Department of Energy, USA

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:50-15:15</td>
<td>Title: Overall solar water splitting reactor and plant design towards mass production of H₂ and O₂</td>
<td>Taro Yamada, The University of Tokyo and ARP Chem, Japan</td>
<td></td>
</tr>
<tr>
<td>15:15-15:40</td>
<td>Title: Production of hydrogen rich gas from tea waste</td>
<td>Nezihe Ayas, Anadolu University, Turkey</td>
<td></td>
</tr>
<tr>
<td>15:40-16:05</td>
<td>Title: Challenges and opportunities facing by China's renewable energy development</td>
<td>Xiaoli Zhao, China University of Petroleum-Beijing, China</td>
<td></td>
</tr>
</tbody>
</table>

Networking and Refreshment Break 16:05- 16:20 @ Foyer

16:20-16:45  Title: Earth-abundant nanostructured materials for efficient solar fuel production | Nageh K Allam, The American University in Cairo, Egypt |

16:45-17:10  Title: Investigations of non-edible seeds oils in comparison with soybean benchmark for production of biodiesel | Musa B Danjaji, South Carolina State University, USA |

Panel Discussion 17:10-17:20
| RER 01 | Title: Evaluating onshore and offshore wind energy feasibility for State of Texas  
Miyako Nakayama, University of Idaho, USA |
| RER 02 | Title: Photoelectrochemical materials for sunlight-driven water splitting devices  
Hiroshi Nishiyama, The University of Tokyo, Japan |
| RER 03 | Title: Hydrocarbon source potential of tertiary carbonaceous shale, shale and siltstone of eastern Chenor, Penyu basins, Pahang, Malaysia  
Yousif M Makeen, University of Malaya, Malaysia |
| RER 04 | Title: Study of structure and electro-optical characteristics of indium tin oxide thin films  
Najla Khusayfan, University of Jeddah, Saudi Arabia |
| RER 05 | Title: Thermal, structural and optical investigation of the effect of gamma irradiation in PM-355 nuclear track detector  
Mymona Abutalib, University of Jeddah, Saudi Arabia |
| EMFC 06 | Title: K-doped mixed-phase 1D TiO$_2$ nanofibers on Ti foil for electrochemical super capacitor: annealing-free synthesis  
Hasi Rani Barai, Yeungnam University, South Korea |
| EMFC 07 | Title: Highly efficient Nano composite electrolyte for quasi-solid-state dye-sensitized solar cells under room light conditions  
Shanmuganathan Venkatesan, National Cheng Kung University, Taiwan |
| EMFC 08 | Title: Low cost membrane for efficient microbial fuel cell: power generation and petroleum refinery wastewater treatment  
Shrok Allami, Ministry of Science and Technology, Iraq |
| EMFC 09 | Title: Giant Seebeck coefficient in the microwave synthesised β-Co(OH)$_2$ nanoplatelets for thermoelectric power generators  
Ahmed Alshahrie, King Abdulaziz University, Saudi Arabia |
| EMFC 10 | Title: Highly flexible and scalable photo-rechargeable power unit based on symmetrical nanotube arrays  
Fayin Zhang, Donghua University, China |
| EMFC 11 | Title: Detection and application of heavy metal ions in environment and biological cell imaging based on fluorescence probe testing technology  
Gang Zhao, Donghua University, China |
| EMFC 12 | Title: Synthesis of amphiphilic fluorescent probe and follow-up imaging of Hg$^{2+}$ in living cells  
Wei Gang, Donghua University, China |
| EMFC 13 | Title: Development of new bifunctional dense ceramic-carbonate membrane reactors for CO oxidation and subsequent CO$_2$ permeation  
Pedro Sánchez-Camacho, Universidad Nacional Autónoma de México (UNAM), Mexico |
| EMFC 14 | Title: Diagnosis of membrane chemical degradation for a health management system of polymer electrolyte fuel cells  
Derek Low, Loughborough University, United Kingdom |
| RER 15 | Title: Enhancement of biocatalytic conversion of carbon dioxide using methyl-functionalized silica nanoparticles  
Byung-Keun Oh, Sogang University, South Korea |