

5th

International Conference on

FOSSIL & RENEWABLE ENERGY

March 01-03, 2021 | Virtual



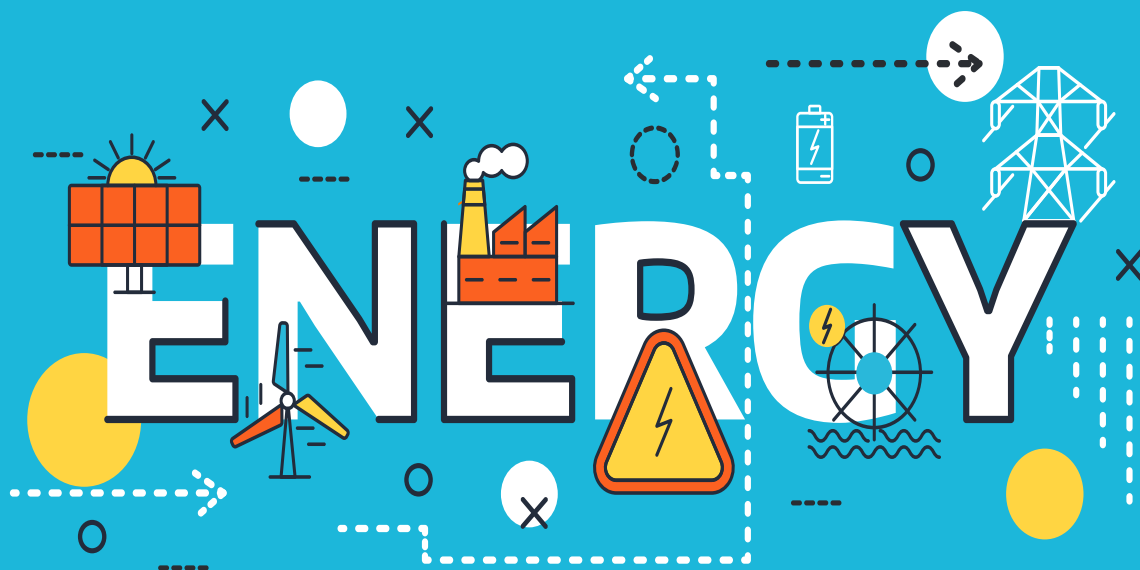
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Except for the chairman/moderator and the speaker, all attendees microphones will be muted by the host.

Q&A - Chat Function

The participants will submit their questions through the chat function and the moderator / chair of the session will pick the questions for the discussion.

To direct your question, tag the speakers name to the questions as you submit them to the chat (e.g., For Dr. Will Torres – Question 1).

Audience

We are anticipating over 150 attendees who will come from a range of professional backgrounds with a varied level of knowledge and expertise in technical and commercial aspects across the subject area.

For Speakers

You will be allowed to share your screen during your presentation.

Session chair will pick the questions from the participants and asks the speaker depending on the time available. In case if more questions are left in the chat box, we encourage speakers to answer via chat and continue the discussion.

For Poster Presenters

All the poster presentation recorded videos are made available to all the participants to view at any point of time at their convenience.

According to the program, the presenter will be available during the time slot for the Q&A.

Recording

The session will be recorded for training purpose and some for the video library. Most of the speakers have already consented to recording their presentation but please inform us otherwise if you have some content which should not be recorded.

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Zoom meeting links to join F&R Energy 2021 | Virtual

Join the Zoom Meeting

Topic: F&R Energy 2021 | Virtual

Date: March 01-03, 2021

Time zone: Eastern Time (US)

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Meeting ID: 935 0774 1330

Passcode: 525100

Time zone: Eastern Time (US)

07:55-08:00

Introduction

Chair:

Angelo Lucia, University of Rhode Island, Kingston, RI

Plenary Lectures

08:00-08:40

Private Sector Interest and Participation in Fusion Energy Development

Howard Hornfeld, Fusion Advocates, Switzerland



Dr. Howard Hornfeld received his Bachelor of Science from MIT, and his Masters from University of California, before moving to Europe, where he earned his D.Sc at University of Sussex (UK). His studies in chemistry and other physical and materials sciences prepared him for consulting in high-performance polymers through his Geneva-based firm CONSULTEX SA, which he ran for over 20 years. He then moved to run the United Nations Economic Commission for Europe's Chemical Industry Program for six years. Since retiring from the UNECE, he created FUSION ADVOCATES in 2013, for which he has been tirelessly promoting the idea that YES, WE CAN do fusion.

08:40-09:20

Reducing Industrial Carbon Emissions: Creating and Operating an Industrial Demonstrator for Multiple Decarbonization Technologies

Andrew R. Barron, Energy Safety Research Institute (ESRI), UK



Dr. Andrew Barron is the founder and the Director of the Energy Safety Research Institute (ESRI), Swansea University where he is the Ser Cymru Chair of Low Carbon Energy and Environment, and Professor Emeritus Rice University. Early research spanned catalysis, electronic materials and nanotechnology. His current research involves problems in energy and global environmental research. His research group has projects involving water purification, enhanced oil recovery, sustainable materials, and carbon dioxide mitigation. A Fellow of the Royal Society of Chemistry and recipient of Humboldt Senior Scientist Research Award, the first Welch Foundation Norman Hackerman Award, and the World Technology Award (in Materials).

09:20-10:00

Exergy Methods and the Environment

Marc A. Rosen, University of Ontario Institute of Technology, Canada



Dr. Marc A. Rosen, Ph.D., is a Professor at University of Ontario Institute of Technology in Oshawa, Canada, where he served as founding Dean of the Faculty of Engineering and Applied Science. He has served as President of the Engineering Institute of Canada and of the Canadian Society for Mechanical Engineering. He has acted in many professional capacities, including Editor-in-Chief of various journals and a Director of Oshawa Power and Utilities Corporation. With over 70 research grants and contracts and 900 technical publications, He is an active teacher and researcher in sustainable energy, sustainability, and environmental impact. Much of his research has been carried out for industry. He has worked for such organizations as Imatra Power Company in Finland, Argonne National Laboratory near Chicago, the Institute for Hydrogen Systems near Toronto, and Ryerson University in Toronto, where he served as Chair the Department of Mechanical, Aerospace and Industrial Engineering. He has received numerous awards and honours, and is a Fellow of numerous societies.

10:00-10:10

Break

10:10-10:50

Optimization in Electric Power Distribution Systems

Panos M. Pardalos, University of Florida, Gainesville, FL

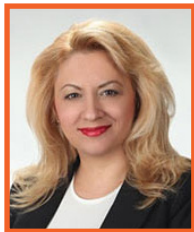


Prof. Pardalos is a world renowned leader in Global Optimization, Mathematical Modeling, Energy Systems, and Data Sciences. He is a Fellow of AAAS, AIMBE, and INFORMS and was awarded the 2013 Constantin Caratheodory Prize of the International Society of Global Optimization. In addition, Dr. Pardalos has been awarded the 2013 EURO Gold Medal prize bestowed by the Association for European Operational Research Societies. This medal is the preeminent European award given to Operations Research (OR) professionals for "scientific contributions that stand the test of time." He has been awarded a prestigious Humboldt Research Award (2018-2019). The Humboldt Research Award is granted in recognition of a researcher's entire achievements to date – fundamental discoveries, new theories, insights that have had significant impact on their discipline. He is also a Member of several Academies of Sciences, and he holds several honorary PhD degrees and affiliations. He is the Founding Editor of Optimization Letters, Energy Systems, and Co-Founder of the International Journal of Global Optimization, Computational Management Science, and Springer Nature Operations Research Forum. He has published over 500 journal papers, and edited/authored over 200 books. He is one of the most cited authors and has graduated 64 PhD students so far.

10:50-11:30

Solar Thermal Production of Hydrogen and Carbon Black as a Promising Environmentally Clean Supply for Fuel Cells

Nesrin Ozalp, Purdue University Northwest, Hammond, IN



Dr. Nesrin Ozalp is a Professor and Chair of Mechanical and Civil Engineering at Purdue University Northwest, a Full Professor by Courtesy at the School of Mechanical Engineering of Purdue University West Lafayette, and Editor-in-Chief of Thermopedia by Begell House. She received her Ph.D. from the University of Washington's Mechanical Engineering Department and her MSc in Mechanical Engineering from Stanford University. Dr. Ozalp specializes in the areas of designing novel solar reactors for emission-free generation of fuels. She is the Lead Principal Investigator of research projects totaling \$5M+, the corresponding author of 120+ peer reviewed journal, book chapter, and conference papers, Co-PI of completed Phase I of Solar Carbon Black commercialization with Fraunhofer. She is the vice chair of ASME Solar Energy Executive Committee, and the recipient of many research and teaching awards including the Outstanding Reviewer Award by the ASME Heat Transfer Division, and the College-Level Distinguished Teaching Award by the Texas A&M Association of Former Students. Dr. Ozalp is an ASME Fellow.

11:30-12:10

Directions and Challenges for Next Generation Energy Storage Materials and Technologies

Jun Liu, Pacific Northwest National Laboratory, University of Washington, WA



Dr. Jun Liu is a Washington Foundation Innovation Chair and Campbell Chair Professor at the University of Washington (UW), and a Battelle Fellow at the Pacific Northwest National Laboratory (PNNL). He also serves as the Director for Innovation Center for the Battery500 Consortium and President of the International Coalition for Energy Storage. Dr. Liu received the PNNL Life-Time Achievement Award, Battery Division Technology Award from The Electrochemical Society (ECS), two R&D100 Awards and the DOE EERE Exceptional Achievement Award. He is an elected member of Washington Academy of Science, a Materials Research Society (MRS) Fellow, an Electrochemical Society (ECS) Fellow, and an American Association for the Advancement of Science (AAAS) Fellow. He has been ranked as a highly cited researcher in the world since 2014. He was named a Distinguished Inventor of Battelle in 2007, and was two times selected as PNNL's Inventor of the Year.

12:10-12:20

Break

Keynote Presentations

Chair: **Howard Hornfeld**, Fusion Advocates, Switzerland

12:20-12:50

Advanced Multiphase Flow Characterization in an Annulus of an Extended Reach Well

Aziz Rahman, Texas A&M University, Qatar



Dr. Mohammad Azizur Rahman received his PhD from University of Alberta, Canada in 2010. He is currently an Associated Professor in the Petroleum Engineering Program at Texas A&M University at Qatar (TAMUQ). Prior to his appointment at TAMUQ, he was an Assistant Professor at Memorial University of Newfoundland and an Instructor at University of Alberta, Canada. He has received around 2 million research funding from Qatar Foundation, Natural Sciences and Engineering Research Council of Canada, and Newfoundland Research & Development Corp. He has been involved in a number of research collaborations with companies, including Total, Qatargas, Intecsea, NEL, Syncrude Canada, GRI simulations, and Petroleumsoft.

12:50-13:20

Mechanics of Swelling: A Diffusion Based Approach Elastomer Research at Sultan Qaboos University

Sayyad Zahid Qamar, Sultan Qaboos University, Oman



Dr. Sayyad Zahid Qamar is currently working as a Prof. at the Mechanical and Industrial Engineering Department, Sultan Qaboos University (SQU), Muscat, Oman. He has over 25 years of academic and research experience in different international universities. He has also worked as a professional mechanical engineer in the field for over 6 years in the heavy engineering and fabrication industry (Manager Research and Development; Deputy Manager Design; Production Engineer; Quality Control Engineer). On top of his experience as a researcher/academician, he has been actively involved in research and accreditation work related to engineering education. His technical research areas are Applied materials and manufacturing; Applied mechanics and design; Reliability engineering; and Engineering education.

13:20-13:50

Solar Photoelectrochemical Fuel Generation: Challenges and Opportunities

Oomman K. Varghese, University of Houston, Houston, TX



Dr. Oomman K. Varghese is an Associate Professor in the Department of Physics, University of Houston (UH), Texas. His group's research is primarily aimed at developing nanoscale materials and heterostructures and investigating their unique properties for solar energy conversion and medical applications. He has contributed to over 100 peer reviewed articles, one book, two book chapters and three patents. His publications have received over 36,600 citations (Google Scholar h-index - 74). In 2011, Thomson Reuters ranked him 9th among 'World's Top 100 Materials Scientists' in the past decade. In 2014, 2015 and 2016 he received the title 'Highly Cited Researcher' and had his name listed in Thomson Reuters' World's Most Influential Scientific Minds. He is among the top 2% of the scientists in the world per the Stanford University report 2020. He is a recipient of the UH College of Natural Science and Mathematics John C. Butler Award for Excellence in Teaching.

13:50-14:20

Novel Material Strategies to Ultrasensitive Membranes for CO₂ Capture

Richard Spontak, North Carolina State University, Raleigh, NC



Dr. Richard Spontak, a Distinguished Professor at NC State University, received his B.S. and Ph.D. degrees in Chemical Engineering from Penn State and UC Berkeley, respectively. He has >290 peer-reviewed journal publications and >35 book chapters and invited works, and his research has been featured on 30 journal covers and cited over 13,000 times. He has received numerous honors including the ACS Chemistry of Thermoplastic Elastomers Award, the IOM3 Colwyn Medal and the SPE International Award. He is a fellow of the American Physical Society and the Royal Society of Chemistry, and a member of the Norwegian Academy of Technological Sciences.

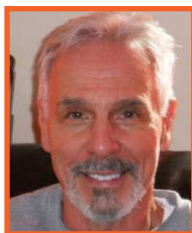
14:20-14:30

Break

14:30-15:00

Modeling Asphaltene as Glassy Materials

Angelo Lucia, University of Rhode Island, Kingston, RI



Dr. Angelo Lucia is the Chester H. Kirk Professor of Chemical Engineering at the University of Rhode Island, a position he has held for the last 25 years. His main interests are in the area of computational thermodynamics, sub-surface flow processes and more recently metabolic pathway analysis. He has over 100 publications in archival journals, 200 presentations, has received considerable funding from the National Science Foundation, Department of Energy, Petroleum Research Fund and many other organizations, and has been the recipient of the outstanding university researcher at two separate universities.

15:00-15:30

Using the Synergy Between Lipid-rich and Protein Rich Biomass to Enhance Economic Viability of Biofuel Production

Elham Fini, Arizona State University, Tempe, AZ



Dr. Elham Fini is a Professor at Arizona State University, an Invention Ambassador at the American Association for the Advancement of Science, a Fulbright Scholar of Aalborg University of Denmark, a Senior Sustainability Scientist at the Global Institute of Sustainability and Innovation and Director of the Innovation Network for Materials, Methods and Management. Her research focuses on the production, characterization and atomistic modelling of sustainable novel materials for use in construction. In addition to more than 200 scholarly publications and numerous invited talks, her research has been featured by Science Nation, Wired Magazine, and CNBC. She is editor of the ASCE Journal of Materials and Journal of Resources, Conservation & Recycling. She has served as the president of ASCE's North Carolina Northern Branch and a program director of the National Science Foundation. Her achievements have been recognized via multiple awards including an NSF CAREER award, ASEE Gerald Seeley award, BEYA Emerald STEM Innovation award, NC BioTech Research Excellence award and WTS Innovative Transportation Solution award to name a few.

15:30-16:00

Getting to Zero: Preparing for Deep Decarbonizing

Ripudaman Malhotra, Malhotra Energy Consultancy, Lake Oswego, OR



Dr. Ripudaman Malhotra, PhD, is an organic chemist, and during his 36-year tenure at SRI worked extensively on the chemistry of processing fossil fuels. In 2005 he joined Hew Crane and Ed Kinderman to co-author ““A Cubic Mile of Oil: The Looming Energy Crisis and Options for Averting It,”” which was published by the Oxford University press in 2010. Among his technical works are over 100 papers in archival literature. He is a section editor of Encyclopedia of Sustainable Science and Technology. In 2005 he was named an SRI Fellow, in 2015 he was awarded the Storch Award for Fuel Sciences by the Energy and Fuel Division of the American Chemical Society (ACS), in 2018 he was named an ACS Fellow, and in 2019 he was inducted into the SRI Hall of Fame.

16:00-16:30

Shale Gas Production, Underground Longwall Coal Mining, and Miner Safety and Health Implication

Daniel. W.H. Su, CDC/NIOSH/PMRD/MSSB, Pittsburgh, PA



Dr. Daniel Su received his Ph.D. Degree in Mining Engineering from West Virginia University in 1982. Upon graduation, he was employed as an assistant professor in the Mining Engineering Department of West Virginia University. In 1985, he joined CONSOL Energy Research and Development as a Research Engineer, and eventually became Manager of Geo-mechanical Engineering. Over his 30-year career with CONSOL Energy, Daniel has conducted numerous application-oriented coal mine ground control research as well as gas well stability research. In May 2015, Daniel retired from CONSOL Energy and Joined the Pittsburgh Mining Research Division of NIOSH in August 2015 as a Senior Service Fellow.

16:30-17:00

100% Renewable Energy

Andrew Blakers, The Australian National University, Australia



Prof. Andrew Blakers is Professor of Engineering at the Australian National University where he founded a solar PV research group. In the 1980s and 1990s he was responsible for the design and fabrication of silicon solar cells with world record efficiencies. He was co-inventor of the PERC silicon solar cell which has 70% of the global solar market, cumulative module sales of US\$50 billion and is mitigating 0.5% of global Greenhouse gas emissions through displacement of coal. Prof Blakers also engages in analysis of energy systems with 50-100% penetration by wind and photovoltaics with support from pumped hydro energy storage.

17:00-17:10

Break

PROGRAM - DAY 1

March 01, 2021 MONDAY



MARCH 01-03, 2021

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Time zone: Eastern Time (US)

Session I: Renewable Energy

- Chair:** **Andrew Blakers**, The Australian National University, Australia
- 17:10-17:35** **Distributed Hybrid Energy Storage Systems, the Nanogrid for Home Application (NGFH) to Provide Network Ancillary Services**
Anna Pinnarelli, University of Calabria, Italy
- 17:35-18:00** **Thermal Conductivity of Water *lh-ice* Measured with Transient Hot-Wires of Different Lengths**
Brian Reding, Complutense University of Madrid, Spain
- 18:00-18:25** **INL's Approach to Integrated Energy Systems**
Anne M. Gaffney, Idaho National Laboratory, Idaho Falls, ID
- 18:25-18:50** **Smart Bio-Inspired Wind Turbine Blade for High Efficiency Wind Energy Utilization**
Xiong (Bill) Yu, Case Western Reserve University, Cleveland, OH
- 18:50-19:15** **A Decentralized Energy Management Platform for High Smart Building Penetrated Distribution Systems**
Meisam Ansari, Southern Illinois University of Carbondale, Carbondale, IL
- 19:15-19:40** **Heavy-Atom-Free Photon Upconversion Using Thiosquaraine Systems**
Cody W. Schlenker, University of Washington, Seattle, WA

Session Poster

- 19:40-19:45** **F&R P1:** <https://energy-conferences.com/posters>
Use of Concentrating Solar Power on Steam Generation in Oil Thermal Recovery
Lucas Bernhard Maisel, Federal University of Rio Grande do Norte, Brazil

19:40-19:50 **Break**

- Chair:** **Glen Thomas Currie**, The University of Melbourne, Australia
- 19:50-20:15** **Integrating Photovoltaics to Thermal Engineering Lab**
Igor Tyukhov, San Jose State University, San Jose, CA
- 20:15-20:40** **3D Seismic, A Key Tool for Design & Derisking of Dual Geothermal Boreholes in Stratified Aquifers and in Fractured Aquifers Along Regional Faults**
Bertrand Six, CGG-Houston, Houston, TX
- 20:40-21:05** **Life Cycle Assessment of a Solar Still for Community Scale Desalination**
Sai Kiran Hota, University of California Merced, Merced, CA

- 21:05-21:30 **Modelling Household Solar Adoption in Australia**
Glen Thomas Currie, The University of Melbourne, Australia
- 21:30-21:50 **Renewable Space Cooling Under Hot-Humid Climate: Performance Study of a Building-Integrated Earth-Air Heat Exchanger System Applying Shallow Groundwater Energy**
Jiun-Wei Hu, National Taiwan University, Taiwan

Session Poster

- 21:50-21:55 **F&R P2: <https://energy-conferences.com/posters>**
A PV System for Coastal and Marine Applications: Design & Implementation
Yasna Schifferli, Gestener, Chile

PROGRAM - DAY 2

March 02, 2021 TUESDAY



MARCH 01-03, 2021

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Meeting ID: 935 0774 1330

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Time zone: Eastern Time (US)

Session II: Fossil Energy

- Chair:** **Ping Zhang**, University of Macau, Macau
- 08:00-08:25** **Development of Hybrid Heterogeneous Catalysts for Conversion of used Cooking Oil (UCO) to Biodiesel via Transesterification**
Norzita Ngadi, Universti Teknologi Malaysia, Malaysia
- 08:25-08:50** **Renewable Energy Technology Implementation in Rural India: A Study with Special Emphasis to North East India**
Plaban Bora, Assam Science and Technology University, India
- 08:50-09:15** **Reforming-Controlled Compression Ignition - a Novel Concept for Internal Combustion Engines**
Amnon Eyal, Israel Institute of Technology, Israel
- 09:15-09:40** **Geomechanical Characterization of CO₂ Storage Sites: A Case Study from a nearly Depleted Gas Field in the Bredasdorp Basin, South Africa**
Eric Saffou, University of the Western Cape, South Africa
- 09:40-10:05** **Fuel-Oil-to-Gas Conversion in Industrial-Size Boilers Driven by Computational Fluid Dynamics**
Antonio Gomez Samper, Nablador, Spain
-
- 10:05-10:15** **Break**
-
- 10:15-10:40** **Novel Metal-Organic Framework Membranes for Gas Separations**
Zhiping Lai, King Abdullah University of Science and Technology, Saudi Arabia
- 10:40-11:05** **Low Cost Middle Infrared Sensor for the Characterization of Alcohol and Gasoline Blends**
Pilar Barreiro Elorza, Polytechnic University of Madrid, Spain
- 11:05-11:30** **From Biogas to Biomethane: Absorption Tests and CO₂ Recovery Perspectives**
Carla Asquer, Sardinia Research, Italy
- 11:30-11:55** **Colloidal Scale Inhibitor Materials for Oilfield Scale Control: Synthesis and Laboratory Testing**
Ping Zhang, University of Macau, Macau
- 11:55-12:20** **Effects of Operating Pressure on Combustion and Pollutants of Shale Gas**
Mehmet Salih, Bingol University, Turkey

12:20-12:45 **The Role of Natural Gas in Low Carbon Energy Transition in Isolated Systems in the State of Amazonas**
Mariana Oliveira Barbosa, University of Sao Paulo, Brazil

12:45-13:10 **Cu-MOR for the Direct Methane Conversion: AIMD, XAS Simulations, and Experiments**
Mal Soon Lee, Pacific Northwest National Laboratory, Richland, WA

Session Poster

13:10-13:15 **F&R P3: <https://energy-conferences.com/posters>**
Biomass Conversation for Green Adsorbent Generation and Rapid Spectroscopy Technique for Its Characterization
Ahmed Hesham, Suez Canal University, Egypt

13:15-13:45 **Break**

Chair: **Randy L. Vander Wal**, Penn State University, University Park, PA

13:45-14:10 **Nanostructured Molybdenum-based Catalysts for Carbon Dioxide Upgrade into Deoxygenated Products**
Vasiliki Zacharopoulou, Aerosol and Particle Technology Laboratory/CERTH, Greece

14:10-14:35 **Passive Small Direct Methanol Fuel Cells as a Sustainable Alternative to Batteries in Hearing Aid Devices – An Overview**
Maria Helena de Sa, University of Porto (FEUP), Portugal

14:35-15:00 **Thermolytic Conversion of Waste Polyolefins into Fuels Fraction with the Use of Reactive Distillation and Hydrogenation with the Syngas under Atmospheric Pressure**
Anna Matuszewska, Łukasiewicz Research Network, Poland

15:00-15:25 **Natural Gas Conversion to Value-Added Carbon Materials by Microwave Plasma Technology**
Randy L. Vander Wal, Penn State University, University Park, PA

15:25-15:50 **Pathways to Low-Cost, Low-Carbon Hydrogen Production Technology**
Scott Koonce, BayoTech On-Site Hydrogen, Houston, TX

15:50-16:15 **Slow Pyrolysis as a Method for Bitumen and Used Plastics Disposal and Valorization**
Marco Maniscalco, University of Palermo, Italy

Session Poster

16:15-16:20 **F&R P4: <https://energy-conferences.com/posters>**
Tunable Hydrogen Production Using Gate-Modulated Two-Dimensional Transition Metal Dichalcogenide
Chaoran Chang, University at Buffalo, Buffalo, NY

16:20-16:25 **Break**

16:25-16:50 **Legal Issues for Implementing Carbon Capture Utilisation and Storage (CCUS) Technologies in the Asian Pacific Region**
Akihiro Nakamura, Meiji University, Japan

16:50-17:15 **Thermodynamics and Phase Relationship of Carbonaceous Mesophase Appearing During Coal Tar Pitch Carbonization**
Mahnaz Soltani Hosseini, Polytechnique Montreal, Canada

17:15-17:40 **Nanomaterials for Nanofluid Enhanced Oil Recovery: Challenges and Perspectives**
Wei Wang, Aramco Research Center, Cambridge, MA

17:40-18:05 **Energy and the Unfolding Boundary Constraints of Mechanical Design Theory**
John Schramski, University of Georgia, Athens, GA

Session Poster

18:05-18:15 **F&R P5: Special Talk on "PIEZOELECTRIC POWER APPARATUS"**
Edwin Newman, Palmdale, CA

18:15-18:20 **Break**

Chair: **Gerhard (Gerry) F. Swiegers**, University of Wollongong, Australia

18:20-18:45 **Navigating the Politics of Fracking**
Mark Truax, Pac/West Communications, Denver, CO

18:45-19:10 **Sustainable Alternatives to Plastics**
Muhammad Rabnawaz, Michigan State University, East Lansing, MI

19:10-19:35 **Are Net Zero or Negative CO2 Emissions Possible for our Offshore Oil and Gas?**
Lesley James, Memorial University of Newfoundland, Canada

19:35-20:00 **Novel Hydrogen Evolution Reaction Electrocatalyst Design Using Low-Dimensional Material**
Sichen Wei, University at Buffalo, Buffalo, NY

20:00-20:25 **Bio-Mass Derived 5-hydroxymethylfurfural into Value Added Ester Products Using Plasmonic Metal Nanoparticles**
Helapiyumi Weerathunga, Queensland University of Technology, Australia

20:25-20:50 **A New Class of Bubble-Free Water Electrolyzer that is Intrinsically Highly Efficient**
Gerhard (Gerry) F. Swiegers, University of Wollongong, Australia

20:50-21:15 **Reverse Supply Chain Concept to Reduce Plastic Packaging Waste as Result of Increasing e-Commerce Sales during COVID-19 Pandemic**
Yosi Agustina Hidayat, Bandung Institute of Technology, Indonesia

21:15-21:40 **The Relationship Between Energy Production and Simultaneous Nitrification and Denitrification via Bioelectric Derivation of Microbial Fuel Cells at Different Anode Numbers**
Huang Shan, Southeast University, China

21:40-22:05 **Simultaneous Copper Migration and Removal from Soil and Water Using a Three-Chamber Microbial Fuel Cell**
Zhang Jingran, Southeast University, China

Session Poster

22:05-22:10 **F&R-P6: <https://energy-conferences.com/posters>**
Spatial and Temporal Evolution of the Sinian Strata and its Implications on Petroleum Exploration in the Sichuan Basin, China
Zhengshuo Miao, China University of Petroleum, China

22:10-22:15 **F&R-P7: <https://energy-conferences.com/posters>**
Tectonic Evolution and Hydrocarbon Occurrence Conditions of Shandong Peninsula, China
Jing Wang, China University of Petroleum, China

PROGRAM - DAY 3

March 03, 2021 WEDNESDAY



MARCH 01-03, 2021

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Time zone: Eastern Time (US)

Session III: Energy Applications

- Chair:** Yao Yu, North Dakota State University, West Fargo, ND
- 09:00-09:25** Role of Energy Efficiency in Energy Transition: A Decomposition Analysis of Energy-use
Pooja Sharma, University of Delhi, India
- 09:25-09:50** K Model: A Web Based Software for Predicting Crude Oil Blend Compatibility and Blend Optimization for Increasing Heavy Crude Oil Processing
Rajeev Kumar, Bharat Petroleum Corporation Ltd., India
- 09:50-10:15** Surface-Complex Mediated Photocatalytic Selective Oxidation of 5-Hydroxymethylfurfural to 2,5-Diformylfuran Under Visible Light
Ayesha Khan, Institute of Physical Chemistry, Polish Academy of Sciences, Poland
- 10:15-10:40** Harmonic Oscillator Tank: A New Method for Leakage and Energy Reduction in a Water Distribution Network with Pressure Driven Demand
Latchoomun Lekhrasingh, University of Mascareignes, Mauritius
-
- 10:40-11:00** Break
-
- 11:00-11:25** Review and Analysis of Historical Leakages from Storage Salt Caverns
Arnaud Reveillere, Geostock, France
- 11:25-11:50** Microseismic Assessment and Fault Characterization at the Sulcis (South-Western Sardinia) Field Laboratory
Mario Anselmi, Istituto Nazionale di Geofisica e Vulcanologia, Italy
- 11:50-12:15** Development of a Concept Power Plant Using a Small Modular Reactor Coupled with a Supercritical CO₂ Brayton Cycle for Sustainable Antarctic Stations
Joaquin Bustos, Pontifical Catholic University of Chile, Chile
- 12:15-12:40** Investigation of Phase Reaction between Pr₂NiO₄+δ and Ce_{0.9}Gd_{0.1}O₂-δ Under Solid Oxide Cell Sintering and Operating Temperatures
Chen-Yu Tsai, Imperial College London, UK
- 12:40-13:05** Fossil Fuel Production is Reaching Limits in a Strange Way
Gail E. Tverberg, Our Finite World, Kennesaw, GA
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- 13:05-13:45** Break
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- Chair:** Ricardo Alvarez, Federico Santa Maria Technical University, Chile
- 13:45-14:10** The Perspective Electrode Materials for a New Generation of Lithium-Ion Batteries
Anna. V. Potapenko, Joint Department of Electrochemical Energy Systems, Ukraine

- 14:10-14:35** **Nanoengineering of Optocatalytic Microreactor with Immobilized Catalysts for Selective Oxidation of Aromatic Alcohols**
Swaraj Rashmi Pradhan, Institute of Physical Chemistry, Polish Academy of Sciences, Poland
- 14:35-15:00** **Energy Security and Strategic Storage from a Financial Option Perspective**
Lawrence Haar, The University of Brighton, United Kingdom
- 15:00-15:25** **Two-dimensional Materials for Electrochemical Applications**
Fei Yao, University at Buffalo, Buffalo, NY
- 15:25-15:50** **The Role of Flexible Technologies in the Transition to Low-Carbon Power Systems**
Ricardo Alvarez, Federico Santa Maria Technical University, Chile
- 15:50-16:15** **Development of a Cost-Effective Ground Source Heat Pump System for Maximizing the Use of Renewable Energy**
Yao Yu, North Dakota State University, West Fargo, ND
- 16:15-16:40** **Pressure Mediated Energy Storage in Electrolyte-Permeated Nanopores**
Dusan Bratko, Virginia Commonwealth University, Richmond, VA
- 16:40-17:05** **Flash-Enabled Synthesis of Graphene-Based Electrodes for High-Performance Supercapacitors**
Huihui Zhang, Swinburne University of Technology, Australia
- 17:05-17:30** **The Research and Application of High-temperature Retrofit on Subcritical Units**
Weizhong Feng, Shanghai Shenergy Power Technology Co., Ltd. China
- 17:30-17:55** **Synthesis of Graphene Mesosponge Using HCl-Dissolvable Materials as a Template**
Shogo Sunahiro, Tokai Carbon Co., Ltd., Japan

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Ph: +1-469-854-2280/81;

Email: energy@uniscigroup.net

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