

Eastern Time				
Day 1 - Wednesday, June 17, 2020				
10:00AM	10:15AM	Welcome – Thomas Costabile (Live) Conference Chairs Keynote Introduction – Dr. Guangdong Zhu and Dr. Erik Koepf (Live)		
10:15AM	10:45AM	Keynote 1 (Live) - Mr. Juan J. Torres, Associate Laboratory Director, NREL "Addressing the Research Challenges of Power Grid Modernization"		
10:45AM	11:00AM	Tom Moderates Q&A		
11:00AM	11:10AM	Break		
11:10AM	12:20PM	Room #1 - Dr. Craig Turchi - Session Chair Session #3: CSP Gen3 Technologies Technical Paper Publication: ES2020-1676 - Evaluating the Effective Solar Absorbance of Dilute Particle Configurations Author: Clifford Ho Technical Paper Publication: ES2020-1675 - Design of a 1 Mwth Supercritical Carbon Dioxide Primary Heat Exchanger Test System Author: Matt Carlson Technical Presentation Only: ES2020-1678 - Performance Testing and Lessons Learned From the Development of a Prototype 100 Kwt Moving Packed-Bed Particle-to-Sco2 Heat Exchanger Author: Kevin Albrecht Technical Paper Publication: ES2020-1622 - Operational Modes and System Design of a 2.0 MWh Sodium Molten Salt Pilot System. Author: Kenneth M. Armijo Technical Presentation Only: ES2020-1625 - High-Temperature Materials Development and Characterization for Gen-3 CSP Author: Renkun Chen Technical Paper Publication: ES2020-1759 - Modeling Narrow-Channel Fluidized Bed Particle-to-Sco2 Heat Exchangers for High-Temperature Thermal Energy Transport and Storage Author: Greg Jackson, Xavier Hernandez	Room #2 - Dr. Kevin R. Anderson - Session Chair Session #8: Sustainable Energy Management Technical Presentation Only: ES2020-1733 - Novel System Design for Residential Heating & Cooling Load Shift Using Pcm and Thermal Energy Storage for Economic Benefit and Demand Side Management Author: Michael Kazmierczak Technical Presentation Only: ES2020-1742 - Pathways Towards 100% Carbon Reduction for Electric Utility Power Systems Author: Joseph Ferrari Technical Presentation Only: ES2020-1765 - Thermochemical Heat Recuperation for Compressed Air Energy Storage Author: Fuqiong Lei Technical Presentation Only: ES2020-1777 - Optimal Design and Operation of Hybrid Battery Storage Author: Mariya Koleva Technical Presentation Only: ES2020-1796 - Techno-Economic Modelling of Pumped Thermal Electricity Storage Author: Josh McTigue Technical Presentation Only: ES2020-1726 - Behind the Meter Storage for Electric Vehicle Charging, Electrochemical and Thermal Energy Storage, and Solar Photovoltaic Author: Madeline (Maddy) Gilleran	Room #3 - David Roberts - Session Chair Session #9: Sustainable Buildings Technical Presentation Only: ES2020-1603 - Adapting to Extreme Heat: Social, Infrastructure, and Atmospheric Impacts of Air Conditioning Adoption in Mega-Cities Author: Jorge Gonzalez Technical Paper Publication: ES2020-1632 - Energy Efficiency in K-12 Schools: A Case Study in Florida Author: Hamidreza Najafi Technical Paper Publication: ES2020-1670 - Application of Response Surface Model for Sizing Solar Thermal Energy System for Residential Scale During the Early Design Stages Author: Mohamed Abokersh Technical Paper Publication: ES2020-1628 - Retrofitting for Improving Energy Efficiency: The Embodied Energy Relevance for Buildings' Thermal Insulation Author: Sara Abd Alla Poster Presentation: ES2020-1768 - Development of Typical Residential Buildings and Their Energy Consumption Features From Nationwide Household Energy Survey in S. Korea Author: Donghyun Seo Technical Paper Publication: ES2020-1642 - Adsorption Isotherm and Kinetics of Water Vapor Adsorption Using Novel Super-Porous Hydrogel Composites Author: Ali Al-Ailili
		Technical Paper Publication: ES2020-1690 - Gen3 CSP Materials: Critical Review of Limited Existing and New Survey Data Author: Andrey Gunawan		
12:20PM	12:35PM	Room #1 Q&A - LIVE		
12:35PM	12:45PM	Room #2 Q&A - LIVE		
12:45PM	1:30PM	Room #3 Q&A - LIVE		
		Break		
12:45PM	1:30PM	Panel: "Energy Storage for Grid Resilience of Integrating High Renewable Generation" LIVE - Moderator: Dr. Zhiwen Ma Panelists: Dr. Avi Shultz, Dr. Ellen Stechel, Dr. Anthony Burrell, Dr. Mark Ruth, Dr. Josh Eichman	Workshop: "Sub-interval Distribution Rather than Steady-State Assumption in HOMER Time-Series Simulation of Solar Photovoltaic Systems for Improved Estimates of Phenomenon of Interest to Grid Integration" Panelists: Dr. Andy Walker, Jal Desai, National Renewable Laboratories, Dr. Steffi Klawiter, HOMER Energy, a UL company	
1:30PM	2:00PM	Break		
2:00PM	3:00PM	Room #1 - Dr. Randy Brost - Session Chair Session #4: CSP Measurements Technical Paper Publication: ES2020-1683 - Unmanned Aerial Vehicle Path Generation for Image Collection to Assist HelioStat Field Optical Characterization Author: Kidus Guye Technical Paper Publication: ES2020-1688 - Imaging Particle Temperatures and Curtain Opacities Using an IR Camera Author: Jesus Ortega Technical Paper Publication: ES2020-1709 - Effect of Synthesis Protocol in Enhancing Heat Capacity of Molten Salt Nanofluids Author: Donghyun Shin Technical Presentation Only: ES2020-1788 - A Non-Intrusive Optical (Nio) Approach to Characterize of HelioStats in Utility-Scale Power Tower Plants: Measurement Uncertainty Authors: Guangdong Zhu, Rebecca Mitchell Technical Paper Publication: ES2020-1647 - Outdoor Degradation Test of Solar Mirrors at NREL Author: Daniel Celvi Technical Presentation Only: ES2020-1730 - Improvements on Distant Observer for Parabolic Through Optical Characterization Author: Devon Kesseli Technical Paper Publication: ES2020-1687 - High-Temperature Thermophysical Property Measurement of Proposed Gen3 CSP Containment Materials Author: Sonja Brankovic	Room #2 - Dr. Hamidreza Najafi - Session Chair Session #1: Sustainability of Fuel Technical Paper Publication: ES2020-1627 - Fuel Economy and Emissions of Philippine Cme-Diesel Blends From Drive Cycle and Steady Speed Operation Author: Jose Gabriel Mercado, Edwin Quiros Technical Paper Publication: ES2020-1708 - Investigation of Performance and Emissions of a Crdi Passenger Van Fueled With Coconut Methyl Ester-Diesel Blends Using Drive Cycle and Steady Speed Operation Author: Jose Gabriel Mercado Technical Paper Publication: ES2020-1617 - Feasibility Study of Medium- and Heavy-Duty Compressed Renewable/natural Gas Vehicles in Canada Author: Wahiba Yaici Technical Paper Publication: ES2020-1757 - High-Capacity Solar Thermochemical Splitting of Water From srti0.5mn0.5o3-δ Perovskite With Excellent Stability and Favorable Thermodynamics Author: Xin Qian Poster Presentation: ES2020-1727 - Low Risk, High Reward: Exploring Zero Energy Design With the u.s. Doe Solar Decathlon Author: Zachary Peterson Technical Presentation Only: ES2020-1750 - Modeling Perovskite Oxide Thermodynamics via the Compound Energy Formalism for Solar Thermochemistry Author: Hagan Bush	Technical Paper Publication: ES2020-1616 - Performance Investigation of Solar Organic Rankine Cycle Systems With and Without Regeneration and With Zeotropic Working Fluid Mixtures for Use in Micro-Cogeneration Author: Wahiba Yaici Technical Paper Publication: ES2020-1618 - Heat Pump-Organic Rankine Cycle Hybrid Systems for Co/tri-Generation Applications: A State-of-the-Art Overview Author: Wahiba Yaici Technical Paper Publication: ES2020-1646 - Performance Analysis of a Solar Powered Organic Rankine Cycle With Energy Storage in Different Climate Zones in the United States Author: Jian Zhang, Hadis Hemmati Technical Paper Publication: ES2020-1668 - A Multicriteria Approach to Evaluate Solar Assisted District Heating in The German Market Author: Mohamed Abokersh Technical Presentation Only: ES2020-1793 - Coarse-Grained Model of Underground Thermal Energy Storage Applied to Efficiency Optimization Author: Anders Carlsson
3:00PM	3:20PM	Room #1 Q&A		
3:20PM	3:30PM	Room #2 Q&A - LIVE		
3:30PM	4:00PM	Room #3 Q&A - LIVE		
		Break		
		Introduction - Dr. Erik Koepf Keynote 2 - Prof. Yogi Goswami, University of South Florida "Solar Disinfection and Detoxification Applications and Emerging Innovations"		
4:00PM	4:15PM	Keynote 2 Q&A		
4:15PM	4:45PM	Networking Reception		

Day 2 - Thursday, June 18, 2020

10:00AM	10:15AM	Dr. Guangdong Zhu - Welcome to Day 2, Dr. Erik Koepf to Introduce Prof. Moncef Krarti / Introduction of Karma Sawyer by Prof. Moncef Krarti		
10:15AM	10:45AM	Keynote 3 - Karma Sawyer, US Department of Energy "Grid-Interactive Efficient Buildings"		
10:45AM	11:00AM	Keynote 3 Q&A		
11:00AM	11:10AM	Break		
11:10AM	12:10PM	Room #1 - Dr. Matt Bauer - Session Chair Session #7: CSP Manufacturing & Fabrication	Room #2 - Dr. Mike Wagner - Session Chair Session #5: CSP System Analysis	Room #3 - Dr. Amanda Kolker - Session Chair Session #10: Geothermal Energy and Emerging Technologies
		Technical Paper Publication: ES2020-1703 - Study of Coalescence-Induced Jumping Droplets on Biphilic Nanostructured Surfaces for Thermal Diodes in Thermal Energy Storage Systems Authors: Yihao Zhu, Ho Tsz Chung, Christopher Chao, and Edwin CY Tso	Technical Presentation Only: ES2020-1744 - Heliostat Layout and Aimpoint Strategy Optimization for Concentrating Solar Power Tower Systems Author: Alexander Zolan	Technical Presentation Only: ES2020-1790 - Can Geothermal Energy Play a Competitive Role for Companies Pursuing a Low-Carbon Energy Strategy in the USA Today? Authors: Philip Ball, Jamie Beard
		Technical Paper Publication: ES2020-1710 - Use of Silica Coated Zinc Nanoparticles for Enhancement in Thermal Properties of Carbonate Eutectic Salt for Concentrated Solar Power Plants Author: Donghyun Shin	Technical Paper Publication: ES2020-1705 - Near Optimal Model Predictive Control of Thermal Energy Storage Author: Omer Qureshi	Technical Presentation Only: ES2020-1741- Geothermal Deep Direct Use: A Techno-Economic Analysis of 6 Case Studies Author: Amanda Kolker
		Technical Paper Publication: ES2020-1711 - Nanostructure Fabrication in Pao Media for Enhanced Thermophysical Properties Author: Donghyun Shin	Technical Paper Publication: ES2020-1615 - Pairing Directional Solar Inputs From Ray Tracing to Solar Receiver/reactor Heat Transfer Models on Unstructured Meshes: Development and Case Studies Author: H. Evan Bush	Technical Presentation Only: ES2020-1600 - An Overview of Geothermal/solar Hybridization for Power Generation. Author: Josh McTigue, Guangdong Zhu
		Technical Presentation Only: ES2020-1782 - Aluminum-Doped Calcium Manganite Particles for Solar Thermochemical Energy Storage: Reactor Design, Particle Characterization, and Heat and Mass Transfer Modeling Author: Andrew Schrader	Technical Presentation Only: ES2020-1748 - Optimizing System Design of Concentrating Solar Power Plants Utilizing Derivative-Free Optimization Algorithms Author: William Hamilton	Technical Paper Publication: ES2020-1659 - Effect of Anode Flow Channel Design on the Carbon Dioxide Bubble Removal in Direct Methanol Fuel Cells Authors: Mahmoud Ahmed, Sameer Osman
		Technical Paper Publication: ES2020-1608 - Oxygen Crossover in Solid-Solid Heat Exchangers for Solar Water and Carbon Dioxide Splitting: A Thermodynamic Analysis Author: Philipp Holzemer-Zerhusen	Technical Presentation Only: ES2020-1753 - Variable Flux Profile Optimization of a High Flux Solar Simulator Author: Mohammed Hamid Hussain	Technical Paper Publication: ES2020-1634 - Investigation of Temperature Limitations During Rapid Thermal Cycling of a Micro-Tubular Flame-Assisted Fuel Cell Author: Ryan Milcarek
		Technical Paper Publication: ES2020-1649 - Uncertainty in Predicting the Start-Up Time and Losses for a High Temperature Particle Receiver Due to Solar Resource Variability Author: Rafique Muhammad Mujahid	Technical Presentation Only: ES2020-1764 - Investigation of Bao2/bao Redox Oxides for Solar Thermochemical Energy Storage Author: Fuqiong Lei	Technical Paper Publication: ES2020-1629 -The Importance of Renewable Energy Systems in Meeting Rising Energy Needs of Megacities in a Sustainable Way - Case Study of Greater Cairo Author: Sara Abd Alla
		Technical Paper Publication: ES2020-1626 - Design and Cost Study of Improved Scaled-up Centrifugal Particle Receiver based on Simulation. Author: Cathy Frantz		Technical Paper Publication: ES2020-1650 - Numerical Simulation of Flow Distribution and Electrical Performance of SOFC Stacks with Different Manifolds Author: Ben Xu
12:10PM	12:30PM	Room #1 Q&A	Room #2 Q&A	Room #3 Q&A
12:30PM	12:40PM	Break	Break	Break
12:40PM	1:30PM	Panel: "The Role of Benchmarking and Protocols in Advancing Solar Thermochemical Water Splitting R&D" Moderator: Dr. Ellen Stechel Panelists: Dr. Anthony McDaniel, Dr. Brendan Bulfin, Dr. Andrea Ambrosini	Panel: "Academia's Role in Supporting the Energy Transition — Challenges and Opportunities" Moderator: Prof. Greg Jackson Panelists: Prof. Reinhard Radermacher, Prof. Bryan Willson, Prof. Laura Schaefer	Panel: Impacts of COVA19 in the Building Energy Sector Moderators: Prof. Jorge Gonzalez and Prof. Moncef Krarti Panelists: Prof. Max Zhang, Dr. Kishor Khankari, Prof. Moncef Krarti, and Prof. Jorge Gonzalez
1:30PM	2:00PM	Lunch Break	Lunch Break	Lunch Break
2:00PM	3:00PM	Room #1 - Dr. Cliff Ho - Session Chair Session #2: CSP Particle Technologies	Room #2 - Prof. Moncef Krarti - Session Chair Session #11: Grid-Interactive Efficient Buildings	Room #3 - Dr. Ben Xu - Session Chair Session #12: Emerging Technologies
		Technical Paper Publication: ES2020-1666 - Particle Flow Testing of a Multistage Falling Particle Receiver Concept: Staggered Angle Iron Receiver Author: Lindsey Yue	Technical Presentation Only: ES2020-1694 - Streamlining Environmental Impacts: Geothermal Land Disturbance on Public Lands Author: Jeff Cook	Technical Presentation Only: ES2020-1677 - Theoretical and Experimental Analysis of Atmospheric Water Harvesting Device Author: Anthony Adeyanju
		Technical Paper Publication: ES2020-1607 - Finite Element Analysis of Moving Packed-Bed Particle-to-ScO2 Heat Exchangers Author: Nicolas Delovato	Technical Presentation Only: ES2020-1722 - Grid Integration of Zero Net Energy Communities in Multiple Climate Zones: Grid Impact and Cost Savings Analysis Author: Xin Jin, Jeff McGuire, Prateek Munankarmi	Technical Presentation Only: ES2020-1774 - Effect of Band Offset, Recombination Mechanisms, and Contact Barrier Height in the Performance of Perovskite Solar Cells Author: Jiawei Gong
		Technical Paper Publication: ES2020-1664 - High-Temperature Particle Flow Testing in Parallel Plates for Particle-to-Supercritical CO2 Heat Exchanger Applications Author: Hendrik Frederik Laubscher	Technical Presentation Only: ES2020-1771 - Optimal Control Strategies of Switchable Roof Insulation Systems for Grid-Interactive Efficient Buildings Authors: Ammar Dehwah, Moncef Krarti	Technical Paper Publication: ES2020-1619 - A Techno-Economic Analysis of Solar-Driven Atmospheric Water Harvesting Author: Nathan Siegel
		Technical Presentation Only: ES2020-1681 - Investigating the Thermal Stability of Silica Aerogels at Gen3 CSP Temperatures Author: Zachary Beraquist	Technical Presentation Only: ES2020-1772 - Optimal Controls of Switchable Window Systems for Grid-Interactive Efficient Buildings Author: Mohammad Dabbagh, Moncef Krarti	Technical Paper Publication: ES2020-1640 - Revisiting Theoretical Limits for One-Degree of Freedom Wave Energy Converters Author: Nathan Michael Tom
		Technical Presentation Only: ES2020-1762 - Effective Heat Transfer in Narrow-Channel Fluidized Beds for Primary Heat Exchangers in Thermal Energy Storage Subsystems Author: Jesse Fosheim	Technical Presentation Only: ES2020-1795 - A Review and Categorization of Grid-Interactive Efficient Building Technologies Author: Matthew Steen, Moncef Krarti	Technical Paper Publication: ES2020-1641 - Fault Detection and Classification in Smart Grids Using Wavelet Analysis Author: Ali Al-Allil
		Technical Presentation Only: ES2020-1747 - Characterization of Zr-Doped Ceria and Sr-Doped La-Mn Perovskites for Solar Chemical-Looping Reforming of Methane Author: Caroline Hill	Technical Presentation Only: ES2020-1800 - Predicting Electricity and Heat Demand in Buildings Over a Longer Time Horizon Using a Sequence-to-Sequence Recurrent Neural Network Model Author: Aowabin Rahman	Technical Publication: ES2020-1716 - Effect of Waste Vegetable Oil on Cooling Performance and Lifetime of Power Transformers Author: Hani Tiznobaik
		Technical Paper Publication: ES2020-1660 - Testing and Simulations of Spatial and Temporal Temperature Variations in a Particle-Based Thermal Energy Storage Bin Author: Jeremy Sment		Technical Presentation Only: ES2020-1737 - Numerical Modelling of Ceria Undergoing Reduction in a Particle-gas Counter-Flow: Effects of Chemical Kinetics Under Isothermal Conditions Authors: Wojciech Lipinski, Sha Li
3:00PM	3:20PM	Room #1 Q&A	Room #3 Q&A	Room #3 Q&A
3:20PM	3:30PM	Break	Break	Break
3:30PM	4:00PM	Guangdong Zhu Introduces the Moderator Dr. Achilles Karagiozis Keynote 4 - Frank O'Brien-Bernini, Owens Corning "Sustainability – Creating Enterprise Value"	Keynote 4 Q&A	Keynote 4 Q&A
4:00PM	4:15PM	Keynote 4 Q&A	Keynote 4 Q&A	Keynote 4 Q&A
4:15PM	4:45PM	Awards	Awards	Awards
4:45PM		Conference Ends	Conference Ends	Conference Ends