

The Department of Mechanical Engineering at
The University of Texas at El Paso
Proudly Presents

Southwest Emerging Technology Symposium 2016

Saturday, April 9th, 2016

The University of Texas at El Paso
500 W. University Ave.
El Paso, Texas 79968



Southwest Emerging Technology Symposium 2016

April 9th, 2016
Wyndham Airport Hotel
2027 Airway Blvd
El Paso, TX 79925

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FOREWARD

Welcome to the Southwest Emerging Technologies Symposium sponsored by Shell. The purpose of the symposium is to encourage communication among the engineers and scientists in and around the El Paso area's universities and industries.

The following individuals and organizations are acknowledged for their assistance with the symposium.

Conference Chair:	Dr. Ahsan Choudhuri, The University of Texas El Paso
Technical Chair:	Dr. Yirong Lin, The University of Texas El Paso Dr. Pavana Prabhakar, The University of Texas El Paso Dr. Norman Love, The University of Texas El Paso
Logistics Committee:	Gloria Salas, The University of Texas El Paso Linda Luna, The University of Texas El Paso
Hosted by:	College of Engineering Department of Mechanical Engineering & MIRO Center for Space Exploration and Technology Research (cSETR) The University of Texas at El Paso
Welcome and Introduction:	Dr. Ahsan Choudhuri
Session Chairs:	Dr. Samia Afrin, The University of Texas at El Paso Mr. David Espalin, The University of Texas at El Paso Dr. Louis Everett, The University of Texas at El Paso Mr. Michael Everett, The University of Texas at El Paso Dr. Angel Flores, The University of Texas at El Paso Dr. Cesar Garcia, Lockheed Martin Aeronautics Mr. Charles Scott Hill, The University of Texas at El Paso Dr. Deidra Hodges, The University of Texas at El Paso Dr. Arifur Khan, The University of Texas at El Paso Dr. Chunqiang Li, The University of Texas at El Paso Dr. Chris Navarro, Blue Origin Dr. David Nemir, TXL Group, Inc. Mr. Luis Ochoa, The University of Texas at El Paso Mr. Abraham Trujillo, The University of Texas at El Paso Dr. Jorge Villalobos, Shell WindEnergy Services Inc Dr. Jianguo Wu, The University of Texas at El Paso
Keynote Speakers:	John Applewhite Chief of Propulsion System, NASA-Johnson Space Center Charles Chase Sr. Program Manager Lockheed Martin Skunk Works Nick Gonzales Director, Systems Engineering Space Systems Company Lockheed Martin

Southwest Emerging Technology Symposium

THE UNIVERSITY OF TEXAS AT EL PASO

APRIL 8th – 9th, 2016

April 8th

4:00 pm	RECEPTION/PRE-REGISTRATION	The University of Texas at El Paso	Engineering/CCSB Courtyard
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April 9th

6:30 am	REGISTRATION	Wyndham El Paso Airport	Room: Main Lobby
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7:30 am	BREAKFAST	Wyndham El Paso Airport	Room: Rosewood
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8:00 am	OPENING NOTES	Dr. Yirong Lin Assistant Professor Department of Mechanical Engineering The University of Texas at El Paso	Room: Rosewood
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8:05 am	INTRODUCTION	Dr. Ahsan Choudhuri Professor and Chair Department of Mechanical Engineering The University of Texas at El Paso	Room: Rosewood
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8:10 am	WELCOME	Dr. Howard C. Daudistel Interim Provost The University of Texas at El Paso	Room: Rosewood
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8:30 am	KEYNOTE SPEAKER – I INTRODUCTION	Dr. Norman Love	Room: Rosewood
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8:30 am	KEYNOTE PRESENTATION – I		Room: Rosewood
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**TITLE: Integrated LO2/CH4 Technologies and Systems Solutions
Relevant to Human Mars Exploration**

John Applewhite
Chief of Propulsion System,
Propulsion & Power Division, NASA JSC

9:50 am	PARALLEL TECHNICAL SESSIONS I	
	Session 1-A Additive Manufacturing I	Room: Walnut
	Session 1-B Emerging Technologies I	Room: Satinwood
	Session 1-C Space Systems	Room: Sandalwood
	Session 1-D Energy and Sustainability I	Room: Orchid
	Session 1-E Aerospace and Energy Materials I	Room: Poplar
10:00 am	SPECIAL SESSION: HIGH SCHOOL INFO SESSION	Room: A/V Theater
	Moderator: Dr. Ryan Wicker	
10:50 am	BREAK AND POSTER SESSION	Room: Main Lobby
11:10 am	PARALLEL TECHNICAL SESSIONS II	
	Session 2-A Additive Manufacturing II	Room: Walnut
	Session 2-B Emerging Technologies II	Room: Satinwood
	Session 2-C Propulsion and Energy Technologies I	Room: Sandalwood
	Session 2-D Energy and Sustainability II	Room: Orchid
	Session 2-E Aerospace and Energy Materials II	Room: Poplar
12:10 pm	LUNCH	Room: Rosewood
12:20 pm	KEYNOTE SPEAKER – II INTRODUCTION	Room: Rosewood
	Dr. Ryan Wicker	
12:20 pm	KEYNOTE PRESENTATION – II	Room: Rosewood
	TITLE: Interactions	
	Charles Chase	
	Sr. Program Manager,	
	Revolutionary Technology Programs at Lockheed Martin Skunk Works	
1:50 pm	PARALLEL TECHNICAL SESSIONS III	
	Session 3-A Additive Manufacturing III	Room: Walnut
	Session 3-B Emerging Technologies III	Room: Satinwood
	Session 3-C ITAR 1: Propulsion and Energy Technologies II	Room: Sandalwood
	Session 3-D Energy and Sustainability III	Room: Orchid
	Session 3-E Aerospace and Energy Materials III	Room: Poplar
3:30 pm	BREAK AND POSTER SESSION	Room: Main Lobby

3:50 pm	PARALLEL TECHNICAL SESSIONS IV	
	Session 4-A Propulsion and Energy Technologies III	Room: Walnut
	Session 4-B Emerging Technologies IV	Room: Satinwood
	Session 4-C ITAR 2: Propulsion and Energy Technologies IV	Room: Sandalwood
	Session 4-D Energy and Sustainability IV	Room: Orchid
	Session 4-E Aerospace and Energy Materials IV	Room: Poplar
5:30 pm	DINNER	Room: Rosewood
5:40 pm	KEYNOTE SPEAKER - III INTRODUCTION	Room: Rosewood
	Dr. Pavana Prabhakar	
5:40 pm	KEYNOTE PRESENTATION – III	Room: Rosewood
	TITLE: Lockheed Martin Space Systems Company	
	Nick Gonzales	
	Director, Systems Engineering	
	Space Systems Company	
	Lockheed Martin	
7:00 pm	ADJOURN	

ABOUT THE SPEAKERS

John Applewhite

John Applewhite is currently the Chief of the Propulsion Systems Branch in the Propulsion & Power Division (PPD) at the NASA Johnson Space Center (JSC) in Houston. A graduate of Texas A&M University with a BS in Mechanical Engineering, he began his career at NASA in 1989 and now leads a group responsibility for the development and oversight of spacecraft propulsion systems for human spaceflight including systems on the Orion, Commercial Crew, and International Space Station programs.



The Propulsion Systems Branch at JSC is also actively involved in technology development and demonstration efforts relevant to human exploration missions with a focus on integrated liquid oxygen (LO₂)/methane (CH₄) propulsion and integrated spacecraft systems. In his 27 year career at NASA, John has worked primarily in the field of propulsion having previously served as a Subsystem Manager for the Space Shuttle Orbiter Reaction Control System, a System Manager for the ISS propulsion elements and visiting vehicles, a NASA Systems Engineer for the Orbiter Main Propulsion System, and as the Division Chief Engineer with responsibility over all PPD Space Shuttle Orbiter systems including the main propulsion orbital maneuvering and reaction control, and auxiliary power systems. Outside of propulsion, John also served as a Project Lead Engineer for the Orion Crew Module vehicle and as a branch chief in the Vehicle Systems Engineering & Integration Branch.

ABOUT THE SPEAKERS

Charles Chase

Charles Chase manages the Revolutionary Technology Programs organization for the Lockheed Martin Skunk Works. The organization's charter is to create, mature, and transition a broad range of disruptive technologies with significant Lockheed Martin system impact.



Technology focus areas include: power and propulsion systems; RF and optical meta-materials; cognitive and physiological human performance monitoring; new sensor modalities; adaptive and bio-inspired structures; and plasma flow control devices.

He recently won the Lockheed Martin Innovate the Future contest with “Power from Low Speed Wind”, and was a semifinalist in the Buckminster Fuller Challenge with “Bio-Inspired Morphing” to eliminate design stagnation. He presented his organization's work on compact fusion power and propulsion at the 2013 Google “Solve for <X>” event. He was a low observable engineer on the F-117A production program and has also worked for the Lockheed Martin Space Systems Company as an electromagnetics group lead. He is a co-founder of CBH Technologies, a start-up developing next generation lighting technology and holds numerous patents.

ABOUT THE SPEAKERS

Nick Gonzales

Nick Gonzales serves as Director of Systems Engineering at Lockheed Martin (LM) Space Systems Company (SSC). He is responsible for approximately 1500 engineers and accountable for systems engineering and technology strategy spanning all products, from sensor systems and missile defense to human spaceflight and deep-space missions.



Previously, Mr. Gonzales performed the duties of Director and Chief Engineer for Lockheed Martin Space Systems Advanced Interceptor Programs. In this role, he was responsible for guiding the design of Lockheed Martin's offering for the next generation interceptor kill vehicle. The purpose of this kill vehicle was to enhance homeland defense against missile attack. When the Government decided they would assemble the best industry had to offer into a cohesive design, Mr. Gonzales served as the LM representative to that industry team.

Prior to embarking on that journey, Mr. Gonzales dedicated a large portion of his career to developing and fielding the THAAD interceptor. He started this effort in the systems test group where he set up the launch control room for implementation of countdown go/no-go operations and managed the \$90M development of the production test equipment used to ATP the missile rounds. He served as the manager of systems integration when the focus was on getting the interceptor qualified for flight. Mr. Gonzales transitioned to CSE during the flight test program, focusing on flight test mission success and on resolving issues discovered during flight operations. Finally, he served as the Director and CE of the THAAD interceptor, driving hard to obtain the approval of the United States Government to release the interceptor to the war fighters in order to defend our troops, friends, and allies in their theater of operation. The THAAD Missile Program employed approximately 200-700 people, dependent on the particular point in the life cycle, and continues to generate 400 million in sales to both US and Foreign Militaries for Lockheed Martin each year.

Under his leadership, the THAAD missile team has provided the Missile Defense Agency (MDA) and the Nation with a missile system that has demonstrated groundbreaking capability and reliably achieving a perfect mission success record. Mr. Gonzales has actively participated in and led the development efforts associated with Missile Systems, Missile Software, Missile Structure/Propulsion Elements and all Test Equipment.

Mr. Gonzales has over 28 years of successful hands on engineering experience and has held leadership positions in Engineering and Program Management. He received his bachelors of science in mechanical engineering from San Jose State University with a minor in electronics. He is a recipient of the prestigious Lockheed Martin NOVA award and has received various other recognition awards from the corporation.

PARALLEL TECHNICAL SESSION I

Session 1-A: Additive Manufacturing I Session Chair: David Espalin, UTEP		Room: Walnut Wyndham El Paso Airport
9:50 am	1A-1	Design And Development Of The Material Handling Components For The Multi3D System S. Ambriz, D. Espalin, J. Coronel, M. Perez, R. Wicker, <i>UTEP</i>
10:10 am	1A-2	Additive Manufacturing For Bonded Composite Joints R. Garcia, E. Acuna, P. Prabhakar, <i>UTEP</i>
10:30 am	1A-3	Fabrication And Modeling of Smart Parts Using Electron Beam Melting Additive Manufacturing Technology R. Martinez, M. S. Hossain, J. A. Gonzalez, M. A. I. Shuvo, J. Mireles, A. Choudhuri, R. B. Wicker, Y. Lin, <i>UTEP</i>
Session 1-B: Emerging Technologies I Session Chair: Cesar Garcia, LMC		Room: Satinwood Wyndham El Paso Airport
9:50 am	1B- 1	Spatially Variant Periodic Structures In Electromagnetics (Presentation Only) Raymond Rumpf, <i>UTEP</i>
10:10 am	1B-2	Numerical Simulation Of Ultrasonic Wave Propagation In Fiber-Enhanced Dielectric Nanocomposites For Quality Inspection J. Wu, Y. Lin, B. Tseng, <i>UTEP</i>
10:30 am	1B-3	Location Of A Maximum Deflection Point With Fiber Bragg Gratings (Fbg) In Polarization Maintaining (Pm) Optical Fiber J. Quintana, <i>UTEP</i>
Session 1-C: Space Systems Session Chair: Louis Everett, UTEP		Room: Sandalwood Wyndham El Paso Airport
9:50 am	1C-1	Daedalus: Lox/Lch4 Suborbital Testbed Design J.Adams, J. Trillo, A. Johnson, A. Choudhuri, <i>UTEP</i>
10:10 am	1C-2	Trajectory Simulation of a Terrier Improved Orion Launch Vehicle D. Camacho, J. Holt, M. Everett, Dr.Angel Flores Abad, <i>UTEP</i>
10:30 am	1C-3	Dynamic Modelling of a Free-Floating Space Manipulator J. Yepez, J. De la Torre, A. Flores-Abad, <i>UTEP</i>
Session 1-D: Energy and Sustainability I Session Chair: Jorge Villalobos, Shell		Room: Orchid Wyndham El Paso Airport
9:50 am	1D-1	Bidding In Wholesale Energy Market M. M. P. Chowdhury, J. Juarez, C. Kiekintveld, <i>UTEP</i>
10:10 am	1D-2	Use Of Life Cycle Sustainability Assessment For Energy Applications B.A. Benedict, <i>UTEP</i>
10:30 am	1D-3	Transactive Energy Systems E. Galvan, P. Mandal, <i>UTEP</i>

Session 1-E: Aerospace and Energy Materials I Session Chair: David Nemir, TXL Group		Room: Poplar Wyndham El Paso Airport
9:50 am	1E-1	Room Temperature Processed Cuscn Hole Transportation Layers For The Use In Perovskite Based Solar Cells J. Galindo, M. Martinez, S. Shahriar, V. Castenada, D. Kava, C. Sana, D. Hodges, <i>UTEP</i>
10:10 am	1E-2	Synthesis Of $\text{Cu}_2\text{ZNSNS}_x\text{SE}_{x-4}$ Thin Films Absorber Layers For Low-Cost, High Efficiency Thin Film Solar Cells C. Sana, S. Shahriar, J. Galindo, D. Kava, V. Castaneda, M. Martinez, E. Castro, L. Echegoyen, D. Hodges, <i>UTEP</i>
10:30 am	1E-3	Crysatlization Of Poly(3-Hexylthiophene) On Carbon Derivatives For Organophotovoltaic Application A. Mishra, V.S.A.Challa, K.C.Nune1, R.D.K Misra, D.Hodges, <i>UTEP</i>

SPECIAL SESSION

Special Session High School Info Session Moderator: Ryan Wicker, UTEP	Room: AV Theater Wyndham El Paso Airport
10:00 am	Dr. Ryan Wicker Professor Mr and Mrs. McIntosh Muchison I Endowed Charied Professor Director, W.M. Keck Ceter for 3D Innovation <i>UTEP</i>
10:15 am	John Applewhite Chief, Propulsion Systems Branch <i>NASA-Johnson Space Center</i>
10:30 am	Nick Gonzales Director, Systems Engineering <i>Space Systems Company</i> <i>Lockheed Martin</i>
10:45 am	Michael Everett Staff Engineer <i>UTEP</i>
11:30 am	Bowie High School and Hornedo Middle School Stellar Students in Orbit (SSiO)

PARALLEL TECHNICAL SESSION II

Session 2-A: Additive Manufacturing II Session Chair: Luis Ochoa, UTEP		Room: Walnut Wyndham El Paso Airport
11:10 am	2A-1	Developing A Controller For A Copper Wire Embedding Tool J. F. Motta, D. Espalin, R. Wicker, <i>UTEP</i>
11:30 am	2A-2	A Novel Approach to Estimate Corrosion Effect in 3D Printed Bio Material's Using Taguchi Method S. D. Kilari, N. Kim, B. Tseng, <i>UTEP</i>
11:50 am	2A-3	Economic Analysis Between Powder Bed-Based Additive Manufacturing Technologies J. A. Gonzalez, J. Mireles, Y. Lin, R. B. Wicker, <i>UTEP</i>
Session 2-B: Emerging Technologies II Session Chair: Abraham Trujillo, UTEP		Room: Satinwood Wyndham El Paso Airport
11:10 am	2B-1	Damage Tolerance And Assessment Of Unidirectional Carbon Fiber Composites M. Flores, D. Mollenhauer, <i>UTEP</i>
11:30 am	2B-2	Design And Testing Of Hybrid Composite Materials For Cryogenic Fuel Tanks R. Avila , Md. Islam , P. Prabhakar, <i>UTEP</i>
11:50 am	2B-3	Stress Corrosion Cracking Susceptibility Of Aluminum Foils For Aerospace Applications E. Garcia, C. M. Stewart, <i>UTEP</i>
Session 2-C: Propulsion and Energy Technologies I Session Chair: Chris Navarro, Blue Origin		Room: Sandalwood Wyndham El Paso Airport
11:10 am	2C-1	Design Of An Optically Accessible High Intensity Turbulence Combustion System A.Acosta-Zamora, A. de la Torre, A. Choudhuri, <i>UTEP</i>
11:30 am	2C-2	Combustion Synthesis Of Zirconium Diboride And Hafnium Diboride: Thermodynamic Analysis S. Cordova, E. Shafirovich, <i>UTEP</i>
11:50 am	2C-3	Flame Front Imaging Techniques On A Backward Facing Step Stabilized Flame A. de la Torre, A. Acosta-Zamora, A. Choudhuri, <i>UTEP</i>
Session 2-D: Energy Sustainability II Session Chair: Jorge Villalobos, Shell		Room: Orchid Wyndham El Paso Airport
11:10 am	2D-1	Impact of intermittent Renewable energy sources on Power system analysis L. A. Gutierrez, P. Mandal , <i>UTEP</i>
11:30 am	2D-2	Converting Methane Waste To Valuable Materials R.R.Chianelli, <i>MRTI</i>
11:50 am	2D-3	Comparison Of Two Idp Technologies In Detecting And Preventing Cyber-Attacks On Microgrid Communication Networks G. K. Chalamasetty, P. Mandal, and B. Tseng, <i>UTEP</i>

Session 2-E: Aerospace and Energy Materials II Session Chair: Arifur Khan, UTEP		Room: Poplar Wyndham El Paso Airport
11:10 am	2E-1	Zinc Oxide Thin Film Preparation By Single Solution Deposition For Perovskite Solar Cells M. F. Martinez, S. Shahriar, D. Kava, C. Sana, V. Castaneda, J. Galindo, D. R. Hodges, <i>UTEP</i>
11:30 am	2E-2	Pyroelectric Energy Harvesting With High Curie Temperature Material Linbo3_{SEP} J. Silva, H. Karim, MD R. H. Sarker, S. Shahriar, M. A. I. Shuvo, D. Delfin, D. Hodges, N. Love, Y. Lin , <i>UTEP</i>
11:50 am	2E-3	Thermal Stability And Oxygen Sensor Characteristic Of Ga₂O₃ Based High Temperature Oxygen Sensors E. J. Rubio, S. Manandhar, C. V. Ramana, <i>UTEP</i>

PARALLEL TECHNICAL SESSION III

Session 3-A: Additive Manufacturing III Session Chair: Cesar Garcia, LMC		Room: Walnut Wyndham El Paso Airport
1:50 pm	3A-1	Unified Software For Multi-Functional G-Code: A Method For Implementing Multi Technology Additive Manufacturing E. Aguilera, D. Espalin, E. MacDonald, R. Wicker, <i>UTEP</i>
2:10 pm	3A-2	Failure Analysis Of Electron Beam Melted Ti-6Al- 4V Tensile Specimen M. S. Haque, E. Arrieta, J. Mireles, C. Carrasco, C. M. Stewart, R. B. Wicker, <i>UTEP</i>
2:30 pm	3A-3	Multi3D System: Advanced Manufacturing With Material Handling Robotics J. L. Coronel Jr., S. Ambriz, C. Kim, D. Espalin, R. B. Wicker, <i>UTEP</i>
2:50 pm	3A-4	Fabrication And Modeling of Smart Parts Using Electron Beam Melting Additive Manufacturing Technology R. Martinez, M. S. Hossain, J. A. Gonzalez, M. A. I. Shuvo, J. Mireles, A. Choudhuri, R. B. Wicker, Y. Lin, <i>UTEP</i>
3:10 pm	3A-5	Development Of The Thermal Wire Embedding Apparatus For Fdm-Printed Parts D. Marquez, <i>UTEP</i>
Session 3-B: Emerging Technologies III Session Chair: Chunqiang Li, UTEP		Room: Satinwood Wyndham El Paso Airport
1:50 pm	3B-1	Development of High-Temperature Digital Image Correlation Method C. Ramirez, C. M. Stewart, <i>UTEP</i>
2:10 pm	3B-2	Optical Second Harmonic Generation Imaging For Ferroelectric Materials Studies Y. Ding, C. Diaz-Moreno, A. Paez, Y. Wang, J. A. López, C. Li, <i>UTEP</i>
2:30 pm	3B-3	Metamaterial Based Passive Wireless Temperature Sensor For Temperatures Up To 500° H. Karim, D. Delfin, L. A. Chavez, L. Delfin, J. Avila, C. Rodriguez, R.C. Rumpf, Y. Lin, & A. Choudhuri, <i>UTEP</i>
2:50 pm	3B-4	Compressive Properties Of Mock Polymer Bonded Explosive Using Digital Image Correlation C. A. Catzin, C. M. Stewart, <i>UTEP</i>
3:10 pm	3B-5	High Temperature Measurement Using Lithium Niobate Ceramic Material Md R. H. Sarker, H. Karim, R. Martinez, J. Silva, N. Love, Y. Lin, <i>UTEP</i>

Session 3-C: ITAR 1 Propulsion and Energy Technologies II Session Chair: Chris Navarro, Blue Origin		Room: Sandalwood Wyndham El Paso Airport
1:50 pm	3C-1	Decomposition Of HAN- and ADN-Based Monopropellants R. Ferguson, E. Shafirovich, <i>UTEP</i>
2:10 pm	3C-2	Linear Burning Rate Measurements Of Hydroxylammonium Nitrate J. Stahl, E. L. Peterse, <i>Texas A&M University</i>
2:30 pm	3C-3	Flame Studies Of LMP-103S Decomposition Products K. Hogge, E. Flores, D. Camacho, A. Choudhuri, N. Love, <i>UTEP</i>
2:50 pm	3C-4	Development Of A Micro-Burner For Hybrid Rocket Combustion Studies J. C. Thomas, J. Stahl, and E. L. Petersen, <i>Texas A&M University</i>
3:10 pm	3C-5	High Test Peroxide Thruster Development J. Mona Mejia, A. Choudhuri, <i>UTEP</i>
Session 3-D: Energy and Sustainability III Session Chair: Angel Flores, UTEP		Room: Orchid Wyndham El Paso Airport
1:50 pm	3D-1	Analysis of Aerodynamics for shell eco marathon vehivle using computational fluid dynamics C. Mata, J. F. Chessa, <i>UTEP</i>
2:10 pm	3D-2	Study Of Learning Effectiveness Of Project- Based Learning Method On Team-Based And Individual-Based Projects H. Kim, A. Akundi, Y. Lin, T. Tseng, <i>UTEP</i>
2:30 pm	3D-3	Study Of Photolysis Rate Coefficients To Improve Air Quality Models For The El Paso-Juarez Airshed S. Mahmud, P. Wangchuk, R. Fitzgerald, W. Stockwell, D. Lu, <i>UTEP</i>
2:50 pm	3D-4	Scenario Planning Applications For Energy Issues B.A. Benedict, <i>UTEP</i>
3:10 pm	3D-5	Non-simultaneous DG and capacitor banks allocation in distribution networks based on economic evaluation S. Sajjadi, P. Mandal, and B. Tseng, <i>UTEP</i>
Session 3-E: Aerospace and Energy Materials III Session Chair: Arifur Khan, UTEP		Room: Poplar Wyndham El Paso Airport
1:50 pm	3E-1	Temperature Sensing On Woven CFRP By Piezoelectric Particles R. Martinez, E. Tarango, Y. Lin, <i>UTEP</i>
2:10 pm	3E-2	Impact Response Of Woven Composites A.Castellanos, S. Md Shariful, P. Prabhakar, <i>UTEP</i>
2:30 pm	3E-3	Mechanical Properties Of Hot Mix Asphalt Materials At Room Temperature For Use In Aerospace Landing Applications J. G. Reyes, C. M. Stewart, <i>UTEP</i>

2:50 pm	3E-4	An Element Activation Approach for Modeling Electron Beam Sintering of Titanium C. Beas, J. Chessa, <i>UTEP</i>
3:10 pm	3E-5	Artic Exposure Studies Of Vinyl Foams For Sandwich Composites C. D. Garcia , P. Prabhakar, <i>UTEP</i>

PARALLEL TECHNICAL SESSION IV

Session 4-A: Propulsion and Energy Technologies III Session Chair: Abraham Trujillo, UTEP		Room: Walnut Wyndham El Paso Airport
3:50 pm	4A-1	500 Lbf Liquid Methane - Liquid Oxygen Throttleable Rocket Engine Design J. Carroll, J. Candelaria, J. Trillo, C. Haynes, <i>UTEP</i>
4:10 pm	4A-2	Design And Development Of A 1 Mw Oxy-Fuel Mhd Combustor B. Lovich, M.J. Hernandez, L. Cabrera, N. Love, <i>UTEP</i>
4:30 pm	4A-3	Design And Test Of Regenerative Cooling Channels And Injector For A 2000 Lbf Lox/Lch4 Engine A. Sandoval, I. Lopez, L. Bugarin, J. Adams, S. Soto, A. Choudhuri, <i>UTEP</i>
4:50 pm	4A-4	Conceptual Design And Simulation Of A Directly Heated Oxyfuel Supercritical Combustor A.Badhan, A S M A. Chowdhury, D. I. Aguilar, N. D. Love, A. R. Choudhuri, <i>UTEP</i>
5:10 pm	4A-5	The Design Of A LOX/LCH₄ Reaction Control System Engine A. Johnson, D. Ott, P. Nunez, R. Ponce, A. Choudhuri, <i>UTEP</i>
Session 4-B: Emerging Technologies IV Session Chair: Samia Afrin, UTEP		Room: Satinwood Wyndham El Airport
3:50 pm	4B-1	Free Edge Effect In Multidirectional Laminates M.S. Islam, P. Prabhakar, <i>UTEP</i>
4:10 pm	4B-2	Numerical Study Of High-Temperature Sco₂ Volumetric Receiver For Concentrating Solar Power System. A. Schiaffino, V. Kumar, <i>UTEP</i>
4:30 pm	4B-3	Design Optimization Of Sandwich Core And Manufacture Through Additive Manufacturing M. Tauhiduzzaman, Md. S. Islam, P. Prabhakar, <i>UTEP</i>
4:50 pm	4B-4	Next Generation Computing Framework For Exascale Simulations A.Chattopadhyay, VMK. Kotteda, V. Kumar, <i>UTEP</i>
5:10 pm	4B-5	2-D Computational Model Of A Coaxial Swirl Fuel Injector J. Aboud, B. Lovich, O. Vidana, L. Cabrera, M.J. Hernandez, N. Love, A. Choudhuri, <i>UTEP</i>

Session 4-C: ITAR 2 Propulsion and Energy Technologies IV Session Chair: Michael Everett, UTEP		Room: Sandalwood Wyndham El Paso Airport
3:50 pm	4C-1	Laboratory-Scale Burning Of Composite Solid Propellant Using In-Situ Synthesized Iron Oxide A. R. Demko, C. Dillier, T. Sammet, K. Grossman, S. Seal, E. L. Petersen, <i>Texas A&M University</i>
4:10 pm	4C-2	Delivery System For Bunker J. M. Mejia, J. Holt, N. Love, A. Choudhuri, <i>UTEP</i>
4:30 pm	4C-3	Burning Rates Of Ap/Htpb-Based Solid Rocket Propellants Containing Graphene C. A. M. Dillier, A. R. Demko, T. Sammet, K. Grossman, S. Seal, E. L. Petersen, <i>Texas A&M University</i>
4:50 pm	4C-4	Characterization Of AF-M315E Propellant For In-Space Applications T. Belcher, J. Valenzuela, N. Love, A. Choudhuri, <i>UTEP</i>
5:10 pm	4C-5	Modern Scanning Electron Microscopy In The Study Of Solid Propellant Combustion: Surface Structure And Elemental Identification Via Eds G. R. Morrow, A. R. Demko, E. L. Petersen, <i>Texas A&M University</i>
Session 4-D: Energy and Sustainability IV Session Chair: Jianguo Wu, UTEP		Room: Orchid Wyndham El Paso Airport
3:50 pm	4D-1	Effect Of Water And Heat Transport On Three- Phase Transient Behavior Of A PEFC A. Nandy, C. Y. Wang, <i>Northern New Mexico College</i>
4:10 pm	4D-2	An Analysis Of A Photovoltaic Solar System Project In An Institution Of Higher Education D. N. De Hoyos, B. Tseng, A. Olivarez, <i>UTEP</i>
4:30 pm	4D-3	Hall Effect Measurement Data V. Vidal, <i>UTEP</i>
4:50 pm	4D-4	Hough transform based automatic segmentation of nanofibers from SEM images Z. Hu, B. Tseng, Y. Lin, J. Wu, <i>UTEP</i>
Session 4-E: Aerospace and Energy Materials IV Session Chair: Deidra Hodges, UTEP		Room: Poplar Wyndham El Paso Airport
3:50 pm	4E-1	Optimization Of Aluminum-Doped Zinc Oxide Thin Films Via Variances In Annealing Temperature V. Castaneda, S. Shahriar, C. Sana, M. Martinez, D. Kava, J. Galindo, and D. Hodges, <i>UTEP</i>
4:10 pm	4E-2	Study Of Tungsten-Yttrium Based Coatings For Nuclear Applications G. Martinez, J. Chessa, S. Shutthanandan, T. Tevuthasan, M. Lerche, C. V. Ramana, <i>UTEP</i>

4:30 pm	4E-3	Characterization And Analysis Of Structural Properties, Crystallography And Surface Potential Of Perovskite Thin Films S. Shahriar, C. Sana, V. Castaneda, M. Martinez, D. Hodges, <i>UTEP</i>
4:50 pm	4E-4	Structural, Dielectric, And Piezoelectric Characterization Of Lead-Free Calcium And Cerium BaTiO₃ Modified J. A. Duran, C. Orozco, C. V. Ramana, <i>UTEP</i>
5:10 pm	4E-5	Physical And Optical Properties Of Czts Spin Coating And Doctor Blade Processing D. Kava, S. Shahriar, M. Martinez, C. Sana, J. Galindo, V. Castaneda, D. R. Hodges, <i>UTEP</i>

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1-A	Additive Manufacturing I	9:50 AM	10:50 AM	Walnut
1-B	Emerging Technologies I	9:50 AM	10:50 AM	Satinwood
1-C	Space Systems	9:50 AM	10:50 AM	Sandalwood
1-D	Energy and Sustainability I	9:50 AM	10:50 AM	Orchid
1-E	Aerospace and Energy Materials I	9:50 AM	10:50 AM	Poplar
Special	High School Info Session	10:00 AM	12:00 PM	AV Theater
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2-B	Emerging Technologies II	11:10 PM	12:10 PM	Satinwood
2-C	Propulsion and Energy Technologies I	11:10 PM	12:10 PM	Sandalwood
2-D	Energy & Sustainability II	11:10 PM	12:10 PM	Orchid
2-E	Aerospace and Energy Materials II	11:10 PM	12:10 PM	Poplar
Keynote Presentation II - Charles Chase		12:20 PM	1:30 PM	Rosewood
3-A	Additive Manufacturing III	1:50 PM	3:30 PM	Walnut
3-B	Emerging Technologies III	1:50 PM	3:30 PM	Satinwood
3-C	ITAR 1 - Propulsion and Energy Technologies II	1:50 PM	3:30 PM	Sandalwood
3-D	Energy and Sustainability III	1:50 PM	3:30 PM	Poplar
3-E	Aerospace and Energy Materials III	1:50 PM	3:30 PM	Orchid
4-A	Propulsion and Energy Technologies III	3:50 PM	5:30 PM	Walnut
4-B	Emerging Technologies IV	3:50 PM	5:30 PM	Satinwood
4-C	Propulsion and Energy Technologies IV	3:50 PM	5:30 PM	Sandalwood
4-D	Energy and Sustainability IV	3:50 PM	5:30 PM	Poplar
4-E	Aerospace and Energy Materials IV	3:50 PM	5:30 PM	Orchid
Keynote Presentation III - Nick Gonzales		5:40 PM	7:00 PM	Rosewood

CONFERENCE ENTER ENTRANCE

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BATHROOMS

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