



CAM-STAR
Publication



2022-2023

Paper Publications

- **Book Chapter:**
 - Wang L, Badal J*, Chen Q, Sanchez P; Earth and Space 2022(Discrete Element Modeling of Drilling Process into the Lunar Regolith Simulants of JSC-1A); 18th Biennial International Conference on Engineering, Science, Construction, and Operations in Challenging Environments
(<https://doi.org/10.1061/9780784484470.014>) **(Collaboration between UDC & Clemson)**
 -
- **Journal:**
 - Chen, F., Xia, Y., Klinger, J., & Chen, Q; Hopper discharge flow dynamics of milled pine and prediction of process upsets using the discrete element method; Powder Technology
(<https://doi.org/10.1016/j.powtec.2022.118165>) **(Collaboration between UDC & Clemson)**

2022-2023

Paper Publications

- **Conference publication:**

- Kabir M, Preller E*, Mohammed R*, Tarau C, Yang B, Alvarez-Hernandez A, Xu J; Investigation of an Additively Manufactured Two-Phase Heat Exchanger with Built-In Thermal Storage; 2023 IEEE ITherm Conference, Orlando, FL **(Collaboration between UDC & JSC & ACT)**
- Wang L, Okur O*, Tasnim Z*, Chen Q, Zhang L*, Badal, J*; 3D Discrete element modeling of cone penetration into the JSC-1A lunar regolith; ASCE Geo-Congress 2023/Los Angeles **(Collaboration between UDC & Clemson)**
- Wang L, Tasnim Z*, Chen Q, Badal, J*; Characterization and Discrete Element Modeling of LHS-1 Lunar Highlands Simulant; ASCE Geo-Congress 2023/Los Angeles**(Collaboration between UDC & Clemson)**
- Addo S*, Tyagi P, Mutunga E; Assessing undergraduate students' level of awareness of commercialization of engineering research innovation at a historically black college and university; 2022 International Mechanical Engineering Congress and Exposition/ Columbus, Ohio
- Addo S*, Tyagi P, Gaye S*, Baker K*; Promoting globalization of engineering by developing students' potential for productive communication and interaction using transactional analysis in a historical black college and university; 2022 International Mechanical Engineering Congress and Exposition/ Columbus, Ohio
- A * Siva Surya, Bai F*, Zhang N, Gebre F, Xu J; Using machine learning to predict the melt-pool depth using structural melt pool length data in laser powder bed fusion; 8TH Thermal and Fluids Engineering Conference, College Park/MD
- Kabir M, Walker R*, Eden C*, Gebre F, Xu J; Experimental Investigation of Capillary Performance of Additively-Manufactured Lattice Structures for Fluid Wicking Applications; 2023 International Manufacturing Science and Engineering Conference (MSEC2023) New Brunswick, NJ

2021-2022

Paper
Publications

- **Journals:**

- Kabir M, Downer J*, Preller E*, Tarau C, Yang B, Xu J; Two-Phase Flow Boiling of Nanofluids in Mini/Microchannels: A State-of-the-Art Review; High Temperature; Accepted: March 2022
- Kabir, M.,Gemeda, T.*,*, Preller, E.*,Xu, J.; Design and Development of a PCM-Based Two-Phase Heat Exchanger Manufactured Additively for Spacecraft Thermal Management Systems; International Journal of Heat and Mass Transfer (Volume 180, ISSN 0017-9310 (2021)); Published: December 2021
- Voss H*, Korey C*, Mohammad R; Electrostatic Cleaning System Integrated with Thunderon Brush for Lunar Dust Mitigation; World Academy of Science, Engineering and Technology International Journal of Aerospace and Mechanical Engineering; Published: November 2021
- Kabir, M., Gemeda, T*, Demisse, W*, Estrada, S*, Wang, L, Xu, J; Design and development of a novel additively manufactured geothermal heat exchanger; International Journal of Energy Research (Volume46, Issue3, 10 March 2022, Pages 3335-3348, <https://doi.org/10.1002/er.7384>) ; Published: October 2021
- Tyagi, P, Brown H*, Grizzle A*, D'Agelo C*, Dahal B*; Molecular coupling competing with defects within insulator of the magnetic tunnel junction-based molecular spintronics devices; Scientific Reports (17128 (2021). <https://doi.org/10.1038/s41598-021-96477-3>); Published: August 2021

2021-2022

Paper Publications

- **Conference publication:**
 - Downer J *, Mehdi Kabir, Irungu J*, Tarau C, Yang B, Xu j; Design and Development of a Smart Multilayer Coating with Variable Emissivity Capability for Spacecraft Thermal Control Systems; 7th Thermal and Fluids Engineering Conference (TFEC2022) /Hybrid
 - Xu J, Shetty D, Sanchez P; Experiential Learning for Undergraduate Students Through Collaborative Capstone Projects on Advanced Manufacturing; International Mechanical Engineering Congress and Exposition IMECE2022 /Columbus, OH
 - Botchway K*, Shaeri M R; The Effect of Outlet Manifold Location of Liquid-Cooled Battery Thermal Management Systems on Pumping Power; 8th World Congress on Mechanical, Chemical, and Material Engineering (MCM'22), Prague, Czech Republic;
 - Wang L, Tasnim Z*, Chen Q, Badal, J*; Characterization and Discrete Element Modeling of LHS-1 Lunar Highlands Simulant; ASCE Geo-Congress 2023/Los Angeles;
 - Wang L, Okur O*, Tasnim Z*, Chen Q, Zhang L*, Badal, J*; 3D Discrete element modeling of cone penetration into the JSC-1A lunar regolith; ASCE Geo-Congress 2023/Los Angeles;
 - Addo S*, Tyagi P, Mutunga E; Assessing Awareness level of Engineering Graduate Students about Innovation Commercialization at Historically Black Colleges and Universities; 2022 ASEE Annual Conference & Exposition/Minnesota;

2021-2022

Paper Publications

- **Conference publication continued:**
 - Preller, E*, Rios, J*, Kabir, M., Xu, J; Design and Development of Additively Manufactured Microchannel Heat Exchangers of Different Cross Sections and Aspect Ratios; 7th Thermal and Fluids Engineering Conference (TFEC2022) /Hybrid;
 - Botchway K*, Shaeri M R; The Effect of Locations of Inlet and Outlet Manifolds on Thermal; Performance of a Lithium-Ion Battery Thermal Management System; 7th World Congress on Momentum, Heat and Mass Transfer (MHMT'22)/Hybrid (Paper No. ENFHT 222 DOI: 10.11159/enfht22.222);
 - Botchway K*, Shaeri M R; Hydrothermal Performance of Liquid-Cooled Battery Thermal Management System with Multiple Inlets; 9th World Congress on Momentum, Heat and Mass Transfer (MHMT'22)/Hybrid;
 - Wang L, Badal J*, Chen Q, Sanchez P, Sun Q; Discrete element modeling of drilling process into the lunar regolith simulants of JSC-1A; ASCE Earth and Space Conference 2022/Denver, CO;
 - Gaye S*, Catuche J*, Kabir M, Hendricks C, Xu J; Design and Development of an Automated Lithium-Ion Battery Temperature and Internal Pressure Monitoring Device; ITherm 2021, The Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems/Virtual;
 - Grizzle, A.*, Dillard, J.*, Dorazio, G.*, Tyagi, P; Optimization of Electrolytic Nickel Plating Process Parameters on Laser Sintered Stainless Steel 316L; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) /Virtual;

2021-2022

Paper
Publications

- **Conference publication continued:**

- Grizzle, A.*, Dillard, J.*, Dorazio, G.*, Tyagi, P.; Effectance of Electroless Nickel Plated Additively Manufactured Steel-Bronze Composite; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) /Virtual;
- Grizzle, A.*, Demisse, W.*, Elliot, A.*, Tyagi, P.; Surface Morphology Study of Electroless Nickel-Phosphorous Plating on Binder-Jetted 420 Stainless Steel Infiltrated With Bronze; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) /Virtual;
- Preller, E*, Mehdi, K, Xu, J; Design and Development of Additively Manufactured Microchannel Heat Exchangers of Different Cross Sections and Aspect Ratios; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) /Virtual;
- Gaye, S.*, Rios, J.*, Tyagi, P., Rakotomananna, H.*; Mathematical Modelling of a Two-Way Head Loss Analysis by Designing a 3d Printable Piping System With Internal Features for Solar Thermal Heaters; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) /Virtual

2021-2022

Paper
Publications

- **Conference publication continued:**

- Velazquez, C.*, Rios, J.*, Rakotomanana, T.*, Xu, J., Kabir, M.; Generative Design of a Novel Additively Manufactured Solar Array System for Powering Space Equipment on the Lunar Surface; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)/Virtual;
- Haghani, S., Harrigan, V.*, Xu, J.; Utilizing the NASA Human Exploration Rover Challenge Project at University of the District of Columbia (UDC) to Enhance the Engineering Experience for the Diverse Population of Underrepresented Students; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) (10.1115/IMECE2021-71979) /Virtual;
- Rios, J*, Velesqueze, C*, Rakotomanana, T*; Novel Design of a Mobile Solar Array; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)/Virtual;
- Rios, J*, Gaye, S*; Numerical Model of a Fluid through a Pipe with Features; 2021 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) (Virtual Conference: November 2021);

2020-2021

Paper Publications

- **Journal**

- Xu, J., Gameda, T.*, Mohammed, R.*, Preller, E.*, Medhi, K. Design and Development of a PCM-Based Two-Phase Heat Exchanger Manufactured Additively for Spacecraft Thermal Management Systems. International Journal of Heat and Mass Transfer
- Gameda T.*, Kabir, M., Demisse, W.*, Estrada, S.*, Wang, L., Xu, J. Design and Development of a Novel Additively Manufactured Geothermal Heat Exchanger. International Journal of Energy Research (IJER)
- Fleming, M.*, Kelley, C.*, Xu, J., Arora, A., Arora, A. Finding 'H' in HRI: Examining Human Personality Traits, Robotic Anthropomorphism and Robot Likeability in Human-Robot Interaction. International Journal of Intelligent Information Technologies

- **Book chapter**

- Rios, J.*, Kabir, M., Gameda, T.*, Mohammed, R.*, Wang, L., Xu, J. Electronics cooling via mini-channel heat exchanger with nano-enhanced fluids. Open Access book, "Electronics Cooling" INTECH Book Publisher, Edited by Dr. Ahmed Alhusseny. ISBN 978-1-83969-009-9
- Kabirnajafi, M., Xu, J. Experimental Approaches to Measurement of Vapor Quality of Two-Phase Flow Boiling. Heat Transfer – Design, Experimentation and Applications. INTECH Book Publisher, Edited by Miguel Araiz. ISBN: 978-1-83968-438-8

2020-2021

Paper
Publications

- **Conference publication:**

- Velazquez, C.* , Rios, J.* , Rakotomanana, T.* , Xu, J., Mehdi, K. Generative Design of a Novel Additively Manufactured Solar Array System for Powering Space Equipment on the Lunar Surface. American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)
- Haghani, S., Harrigan, V.* , Xu, J. Utilizing the NASA Human Exploration Rover Challenge Project at University of the District of Columbia (UDC) to Enhance the Engineering Experience for the Diverse Population of Underrepresented Students. American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)
- Harrigan, V.* , Carter, K.* , Mohammad, R.S. Electrostatic Cleaning System Integrated with Thunderon Brush for Lunar Dust Mitigation. International Conference on Engineering Applications for Spacecraft Systems
- Gameda, T.* , Mohammed. R.* , Kabir, M., Xu, J. Investigation of the Effect of Cross Section on the Convective Heat Transfer Performance of Nanoemulsion in a Microchannel Heat Exchanger. American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE) Fluids Engineering Division's (FED) Summer Meeting
- Moghim, N.* , Haghani, S. Utilizing Non-Orthogonal Multiple Access for both Latency and Energy Efficiency Improvement in TSCH-Based WSNs. IEEE Access
- Parsa, A.* , Moghim, N.* , Haghani, S. Joint congestion and contention control in scalable QoS-aware opportunistic routing. PLOS One
- Xu, J., Hendricks, C.* Multi-Physics Model of Lithium-Ion Battery and Battery Pack Undergoing Abuse Conditions. 2021 ITherm The Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems

2020-2021

Paper
Publications

- **Conference publication:**

- Gemedda, T.*, Mohammed, R.*, Kabir, M., Xu, J. Design and fabrication of an additively manufactured vapor chamber heat exchanger for space application. The Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems
- Wang, L., Tait, S.*, Khoshnevisan, S*., Barati, F.*, & Juang, C.H.* Energy Efficiency Improvement in TSCH-Based WSNs. International Foundations Congress and Equipment Expo, ASCE Geotechnical Special Publication
- Wang, L., Tait, S.*, Barati, F.*, Khoshnevisan, S.* Probabilistic Stability Assessment of Earthen Levees in the Face of Earthquake Loads. International Foundations Congress and Equipment Expo, ASCE Geotechnical Special Publication
- Dillard, J.*, Amir, U.*, Tyagi, P. Structural Stability of Magnetic Tunnel Junction Based Molecular Spintronics Devices (MTJMSD). 2020 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)
- Dillard, J.*, Grizzle, A.*, Demisse, W.*, Tyagi, P. Effect of altering the sequence of Chempolishing and Electropolishing on Surface properties of Additively Manufactured (AM) 316 steel components. 2020 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)

2020-2021

Paper
Publications

- **Conference publication:**

- Xu, J., Rios, J.*, Gameda, T.*, Demisse, W.*, Wang, L. Design and Development of a Direct-Metal-Laser-Sintering (DMLS) Manufactured Geothermal System Heat Exchanger for Easy Installation and Improved Efficiency. 2020 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)
- Tyagi, P., Scerbo, M.*, D’Orazio, G.* Impacts on head loss in a pumpless solar thermal heater calculated by hardy-cross methodology. 2020 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)
- Xu, J., Haghani, S. Experiential Learning in Stem for a Diverse Student Population at the University of the District of Columbia (UDC) Through the Implementation of the UDC Rover Project. 2020 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)
- Xu, J., D’Orazio, G.*, Velazquez, C.*, Haghani, S. Student experiential learning through design and development of a subsurface melting head for nasa rascal-special edition competition. 2020 American Society of Mechanical Engineers International Mechanical Engineering Congress & Exposition (IMECE)