Technical Sessions A Schedule

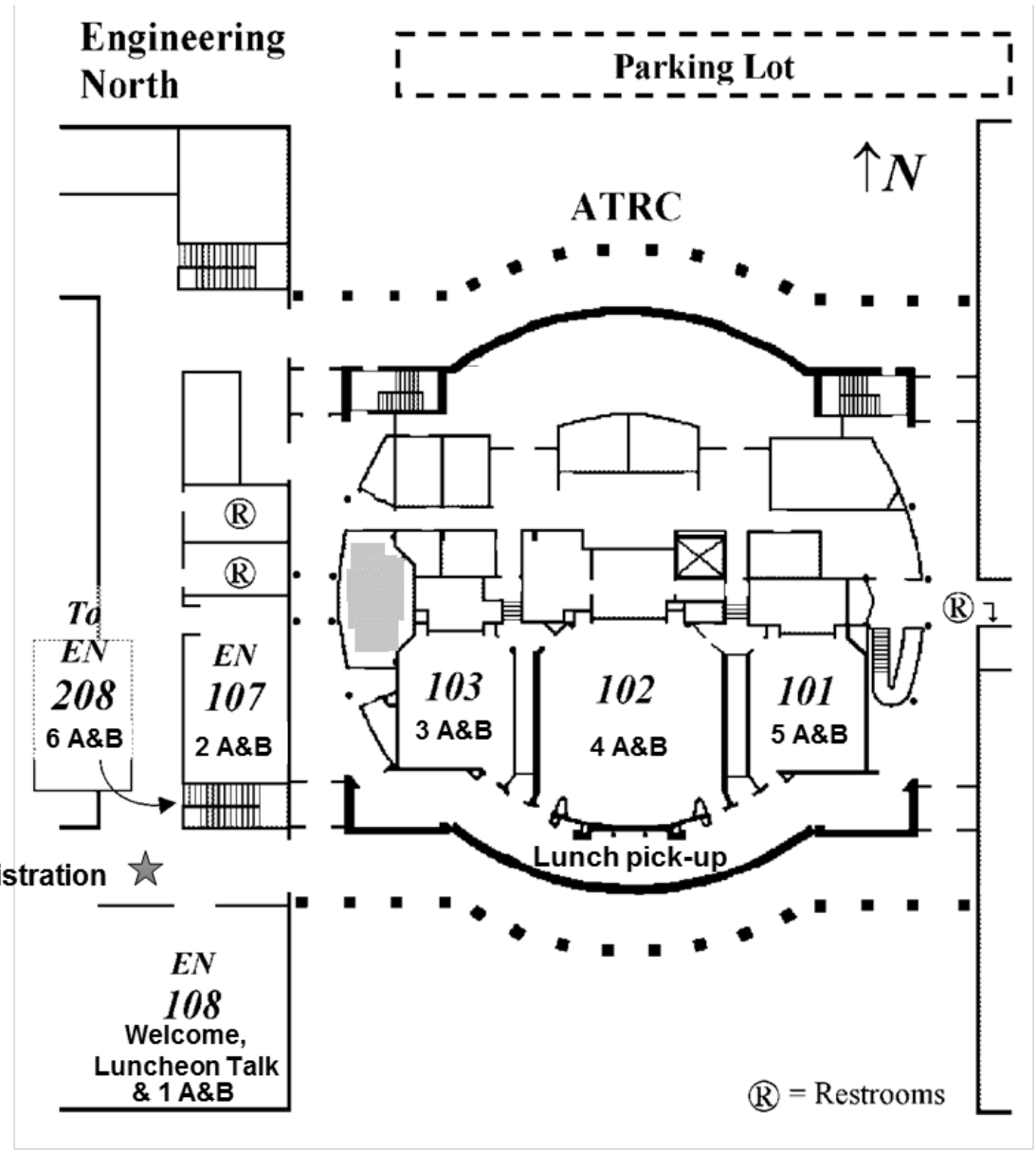
9:15 A.M.	9:30 A.M.	9:45 A.M.	10:00 A.M.	10:15 A.M.
Session 1-A: **Biomechanics I**	*Chaired by:* Arvind Santhanakrishnan, Oklahoma State University			EN 108 (pp. 7-12)
Bat Ear Aerodynamics: Preliminary Results from Flow Visualization Over Ears with and without Tubercles, Christopher E. Petrin and Brian R. Elbing,*Oklahoma State University*, Monte L. Thies, *Sam Houston State University*, and William Caire, *University of Central Oklahoma* p. 8	**Experimental Investigation Of Metachronal Paddling**, M. Samaee, H. K. Lai, and A. Santhanakrishnan, *Oklahoma State University* p. 9	**Comparative Dynamics of Perching Birds for UAV Advancement**, Jonathan Mitchell, Stephen Ziske, and Jamey Jacob, *Oklahoma State University* p. 10	**Currents Induced by Upside-Down Jellyfish: Effects of Bell Size and Interactions with Background Flow**, M. Gaddam, M. Takyi-Micah, and A. Santhanakrishnan, *Oklahoma State University* p. 11	**Clap-and-Fling Aerodynamics in Tiny Insects Using Bristled Wings**, C. L. Terrill and A. Santhanakrishnan, *Oklahoma State University* p. 12
Session 2-A: **Manufacturing I**	*Chaired by:* Xiaoliang Jin, Oklahoma State University			EN 107 (pp. 13-18)
Accounting for Uncertainty and Sustainability in the Realization of Multistage Manufacturing Processes, J. Milisavljevic, M. Robayo, J. K. Allen, S. Commuri, and F. Mistree, *The University of Oklahoma* p. 14	**Melt Expulsion during the Ultrasonic Vibration-Assisted Laser Surface Processing**, S. Habib Alavi, Cody Cowell, and Sandip P. Harimkar, *Oklahoma State University* p. 15	**Experimental Study on Chatter Stability in Vibration Assisted Milling Process**, Anju Poudel and Xiaoliang Jin, *Oklahoma State University* p. 16	**Laser Surface Alloying of Transition Metals with Aluminum to Enhance Corrosion Resistance**, Hitesh D. Vora, *Oklahoma State University* p. 17	**Ag-Nylon Nanocomposites by Dynamic Emulsion Polycondensation**, Linqi Zhang, Sriharsha Karumuri, Habib Alavi, Sandip P. Harimkar, and A. Kaan Kalkan, *Oklahoma State University* p. 17
Session 3-A: **Structural Dynamics and Acoustics**	*Chaired by:* James Manimala, Oklahoma State University			ATRC 103 (pp. 19-24)
Direction-Biased Acoustic Metamaterial Waveguide, Prateek P. Kulkarni, Vishnu Paidimarri, Barrett Lee, and James M. Manimala, *Oklahoma State University* p. 20	**Characterization of a Pulsating Drill Bit Blaster**, Nick Thorp, Geir Hareland, and Brian R. Elbing, *Oklahoma State University* p. 21	**Metamaterial-Inspired Structure for Improved Low-Frequency Acoustic Noise Mitigation**, Anuj Rekhy, Ryan Aiken, and James M. Manimala, *Oklahoma State University* p. 22	**Development of a Compact Atmospheric Infrasonic Measurement System for Early Detection of Tornadoes**, Arnesha Threatt and Brian R. Elbing, *Oklahoma State University* p. 23	**An Optimization-Based Structural Health Monitoring Technique Using Experimental Sensitivity Functions**, Chulho Yang and Young Bae Chang, *Oklahoma State University* p. 24
Session 4-A: **Polymers and Composites**	*Chaired by:* Feng Lai, The University of Oklahoma			ATRC 102 (pp. 25-30)
Effect of Processing Conditions on Hydraulic Fluid Absorption of Quartz/BMI Composites, Keith R. Hurdelbrink II, Gorkem E. Guloglu, Jacob P. Anderson, Zahed Siddique, and M. Cengiz Altan, *The University of Oklahoma* p. 26	**Graphene Dispersion for Polymer Precursors**, V. Shabafrooz, S. Bandla, and J. C. Hanan, *Oklahoma State University* p. 27	**Investigating Morphology, Internal Structure, and Tensile Properties Electrospun Polyacrylonitrile Nanofibrous Yarns**, Bipul Barua and Mrinal C. Saha, *The University of Oklahoma* p. 28	**Photodegradation of Epoxy Polymers**, Sriharsha Karumuri, Salah U. Hamim, Raman P. Singh, and A. Kaan Kalkan, *Oklahoma State University* p. 29	**Experimental and Theoretical Investigation of Non-Fickian Moisture Absorption of Nanoclay/Epoxy Composite Laminates**, G. E. Guloglu and M. C. Altan, *The University of Oklahoma* p. 30

Session 5-A: **Multiphase Flow I**	*Chaired by:* Brian Elbing, Oklahoma State University			ATRC 101 (pp. 31-36)
Investigation of Foam Break-Up in a CFC/GLCC© System, A. Nababan, R. Mohan, and O. Shoham, *The University of Tulsa,* and G. Kouba, *Chevron Energy Technology Company* p. 32	**The Effect of Surfactant Concentration on Rheological Behavior of Oil-Water Emulsion**, Kamyar Najmi and Ram S. Mohan, *The University of Tulsa* p. 33	**Gas-Liquid Two Phase Flow in Downward Inclined Pipes**, S. M. Bhagwat and A. J. Ghajar, *Oklahoma State University* p. 34	**Mass Transfer and Bubble Size in a Vibrating Bubble Column Reactor**, Shahrouz Mohagheghian, Afshin J. Ghajar, and Brian R. Elbing, *Oklahoma State University* and Adam Still, *Sandia National Laboratory* p. 35	**Shear Effects on Droplet Size Distribution in Oil-Water Flow**, M. Zhang, S. Wang, R. Mohan, and O. Shoham, *The University of Tulsa* and Haijing Gao, *Chevron Energy Technology Company* p. 36
Session 6-A: **Solar, Fire, Wind, Plasma, and the Universe I** *Chaired by:* Christian Bach, Oklahoma State University				EN 208 (pp. 37-42)
NO PRESENTATION	**Designing a Cost Efficient and Effective Solar Cooker**, T. Adams and M. Ng, *Oral Roberts University* p. 38	**Concentration Measurements of OH and CH Radicals in Laminar Partially Premixed and Prevaporized Jet-A and Palm Methyl Ester Flames**, A. Balakrishnan, R. N. Parthasarathy, and S. R. Gollahalli, *The University of Oklahoma* p. 40	**Fire Suppression Simulation Study**, Kshitij V. Deshmukh, *CD-adapco* p. 41	**Stator Use on Vertical Axis Wind Turbines**, Aaron Alexander and Arvind Santhanakrishnan, *Oklahoma State University* p. 42

Technical Sessions B Schedule

10:45 A.M.	11:00 A.M.	11:15 A.M.	11:30 A.M.	11:45 A.M.	12:00 P.M.
Session 1-B: **Biomechanics II** *Chaired by:* Ashlee N. Ford, Oklahoma State University EN 108 (pp. 43-50)					
Mathematical Modeling of Biodistribution of Nanoparticles in the Kidney, M. Pilvankar and A. N. Ford Versypt, *Oklahoma State University* p. 44	**Development of Simulation for Use in Predicting Drug Metabolism**, C. German and S. Madihally, *Oklahoma State University* p. 46	**Comparison of Various Techniques of Determining the Wettability of Materials**, L. Baghernejad, E. Iski, and R. Mohan, *The University of Tulsa* p. 47	**Surface Dielectric Barrier Discharge (SDBD)as an Alternative for Atmospheric Pressure Plasma Sterilization**, Kedar Pai , Chris Timmons, Shannon Jiang, Li Ma, and Jamey D. Jacob, *Oklahoma State University* p. 48	**Comparative Study of Diastolic Filling under Varying Left Ventricular Wall Stiffness**, P. Mekala, A. Pope, and A. Santhanakrishnan, *Oklahoma State University* p. 49	**Automated Gram Staining Apparatus**, D. Rykert, M. Mathew, and G. Toby, *Oral Roberts University* p. 50
Session 2-B: **Manufacturing II** *Chaired by:* Jelena Milisavljevic, The University of Oklahoma EN 107 (pp. 51-56)					
Long Board Deck Manufacturing, Daniel Dickie and Charles Tines, *Oral Roberts University* p. 52	**Thermoset-Cross-Linked Lignocelluose: A Moldable Plant Biomass**, Sriharsha Karumuri, Salim Hiziroglu, and A. Kaan Kalkan, *Oklahoma State University* p. 53	**Laser Processing of Multilayered Fe-Based Amorphous Coatings on Stee**, Tanaji Paul, S. Habib Alavi, and Sandip P. Harimkar, *Oklahoma State University* p. 54	**Experimental Study on The Surface Generation in Vibration Assisted Micro-Milling of Glass**, Xiaoliang Jin and Boyuan Xie, *Oklahoma State University* p. 55	**Development of Significantly Grain Refined Ti-6Al-4V Alloys Using Ultrasonic Vibration Assisted Laser Surface Melting**, Sourabh Biswas and Sandip P. Harimkar, *Oklahoma State University* p. 56	**No Presentation**
Session 3-B: **Robotics and Control** *Chaired by:* Girish Chowdhary, Oklahoma State University ATRC 103 (pp. 57-65)					
Ditch Witch Vacuum Excavator, Zach Blumer, *Ditch Witch* p. 58	**Collaborative Goal and Policy Learning from Human Operators of Construction Co-Robots**, H. Maske, M. Matthews, A. Axelrod, H. Mohomadipanah, G. Chowdhary, C. Crick, and P. Pagilla, *Oklahoma State University* p. 59	**A Framework for Navigation Based on Familiarity**, Alex Suhren, Mehran Andalibi, Girish Chowdhary, and Christopher Crick, *Oklahoma State University* Doug Gaffin, and Brad Brayfield, *The University of Oklahoma* p. 61	**Development of a Robotic Device for Infant Physical Therapy**, M. A. Ghazi and M. D. Nash, *The University of Oklahoma* p. 63	**Control of a Robotic Device for Infant Physical Therapy**, M. A. Ghazi and M. D. Nash, *The University of Oklahoma* p. 64	**Development of Flexible Rod Model Using Discrete Element Method to Analyze Multi-Fiber Problem**, Jinsu Nam and Junyoung Park, *Oklahoma State University* p. 65
Session 4-B: **Nanostructured and Advanced Materials** *Chaired by:* A. Kaan Kalkan, Oklahoma State University ATRC 102 (pp. 66-73)					
Triaxial Electrospun Fibers and Role of Solvent Volatility, Abdurizzzgh Khalf and Sundar Madihally, *Oklahoma State University* p. 67	**Effect of Electric Field and Flow Rate on Fiber Diameter Distribution and Tensile Properties of Electrospun Polyacrylonitrile Nanofibrous Yarns**, Bipul Barua, Mehmet S. Demirtas, and Mrinal C. Saha, *The University of Oklahoma* p. 69	**$V_2O_5{\cdot}H_2O$/Au Nanowire/Nanoparticle Conjugates for Solar Water Splitting**, Sunith Varghese and A. Kaan Kalkan, *Oklahoma State University* p. 70	**Sub-Band Engineering through Superlattice Based Barrier Heterostructures for Higher Thermoelectric Efficiency**, M. Pourghasemi and J. Garg, *The University of Oklahoma* p. 71	**Localized Plasmon Modes in Ag Nanohemispheres**, Ç. Özge Topal, Sriharsha Karumuri, Alkim Akyurtlu, and A. Kaan Kalkan, *Oklahoma State University* and Hamzeh M. Jaradat, *University of Massachusetts* p. 72	**High Thermal Conductivity of Aligned Polymers,** M. Saeidijavash, M. C. Saha, J. Garg, *The University of Oklahoma* p. 73

Session 5-B: **Multiphase Flow II**	*Chaired by:* Ram Mohan, The University of Tulsa				ATRC 101 (pp. 74-80)
Solid Particle Transport in Gas-Liquid Stratified Slurry Flow, A. Padsalgikar, R. Mohan, and O. Shoham, *The University of Oklahoma* p. 75	**Sand Flow Regimes in Multiphase Pipelines**, R. Dabirian, R. Mohan, and O. Shoham, *The University of Tulsa* G. Kouba, *Chevron Energy Technology Company* p. 76	**Mechanistic Modeling and Experimental Validation of Droplet Deposition and Coalescence in Long Elbow Bend**, H. Nguyen, S. Wang, R. Mohan, and O. Shoham, *The University of Tulsa* G. Kouba, *Chevron Energy Technology Company* p. 77	**A Simulator to Characterize the Shear Effect of Production Equipment**, S. Cui, S. Wang, R. Mohan, and O. Shoham, *The University of Tulsa* Haijing Gao, *Chevron Energy Technology Company* p. 78	**Characterization of Drag-Reducing Polymer Solution Used to Modify a Turbulent Boundary Layer,** Yasaman Farsiani and Brian R. Elbing, *Oklahoma State University* p. 79	**General Guidelines to Develop a Model to Predict Sand Transport Threshold Velocities in Multiphase Horizontal Pipe,** Kamyar Najmi, Brenton McLaury, Siamack Shirazi, and Selen Cremaschi, *The University of Tulsa* p. 80
Session 6-B: **Solar, Fire, Wind, Plasma, and the Universe II**	*Chaired by:* Tom Betzen, Michelin				EN 208 (pp. 81-85)
Experimental Study of Plasma Jet Produced by a Circular Tube Fitted with a Nozzle, I. W. Brindle and F. C. Lai, *The University of Oklahoma* p. 82	**Hacking the Cosmos: How Engineering Assists Science and the Humanities in Making Sense of the Universe ns**, Dominic M. Halsmer, *Oral Roberts University* p. 83	**Overview of Corken Vane Pumps**, C. M. Vickery, *Corken, Inc.* p. 85	**NO PRESENTATION**	**NO PRESENTATION**	**NO PRESENTATION**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