



ASME® 2020 ISPS

The 29th ASME Annual Conference on
Information Storage and Processing Systems

CONFERENCE
June 24–25, 2020

Virtual, Online

Program

<https://event.asme.org/ISPS>

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SETTING THE STANDARD

Military		PDT		Eastern Time		Session Time			
Day 1 - Wednesday June 24, 2020									
15:00	15:20	3:00 PM	3:20 PM	6:00 PM	6:20 PM	6:00 PM	6:20 PM	Welcome – Thomas Costabile - ASME Executive Director/CEO (Live); ISPS Conference Co-chairs - Prof. Wanchin Kim; Dr. Abhishek Srivastava	
15:20	15:30	3:20 PM	3:30 PM	6:20 PM	6:30 PM			Break	
15:30	16:00	3:30 PM	4:00 PM	6:30 PM	7:00 PM	6:30 PM	7:15 PM	Room #1 Session Chair: Dr. Shaomin Xiong Track 1-1: Fundamentals on Energy Assisted Magnetic Recording & HDD Mechanics Technical Paper Publication: ISPS 2020-1906. Numerical and Experimental Investigation of Nanoscale Heat Transfer Between a Flying Head Over a Rotating Disk. Author: Sakhalakar Siddesh. Submission Code: 16113	Room #2 Session Chair: Dr. Abhishek Srivastava Track 3: Application of Data and Artificial Intelligence in Mechanical Engineering, Track 4-1: Dynamics and Control for Future Technologies I Technical Presentation Only: ISPS 2020-1948. A Low Power Smart Security Surveillance System for Vehicles. Author: Shaomin Xiong. Submission Code: 18326
								Technical Paper Publication: ISPS 2020-1903. Experimental Study on Laser-Induced Protrusion in Heat-Assisted Magnetic Recording. Author Qilong Cheng. Submission Code: 16124	Technical Paper Publication: ISPS 2020-1937. State Estimation of a Robotic Vehicle With Six In-Wheel Drives Using Kalman Filter. Author: Hussein Ali Submission Code: 16609
								Technical Paper Publication: ISPS 2020-1958. Study of Contact Detect Response for Pmr and Hamr Media Using the Integrated Thermistor Based Proximity Sensor. Author: Medha Dakshina, Murthy Peri. Submission Code: 18035	Technical Paper Publication: ISPS 2020-1942. Contact Printing Pressure Uniformization Control System in Roll-to-Roll Process Using 2-Dof Individual Drive System. Author: Jimin Park. Submission Code: 16206
16:00	16:15	4:00 PM	4:15 PM	7:00 PM	7:15 PM	Room #1 Q&A - LIVE		Room #2 Q&A - LIVE	
16:15	16:25	4:15 PM	4:25 PM	7:15 PM	7:25 PM			Break	
16:25	16:55	4:25 PM	4:55 PM	7:25 PM	7:55 PM	7:25 PM	8:10 PM	Room #1 Session Chair: Dr. Shaomin Xiong Technical Presentation Only: ISPS 2020-1944. Enhancing Hamr Reliability via Improved Head-Disk Interface Material Design. Author: Robert Smith. Submission Code: 18206	Room #2 Session Chair: Dr. Abhishek Srivastava Technical Paper Publication: ISPS 2020-1911. A Cad-Free Random Bin Picking System for Fast Changeover on Multiple Objects. Author: Chun-Tse Lee. Submission Code: 16170
								Technical Paper Publication: ISPS 2020-1961: A Method for Characterizing the Head-Disk Interface Dynamics Near the Touchdown Conditions Using the Magnetic Fly-Height Sensitivity. Author: Rahul Rai. Submission Code: 18754	Technical Paper Publication: ISPS 2020-1910. 3d Surface Scanning for Smart Repair Manufacturing Application. Author: Ho-Yu Chuang. Submission Code: 16172
								Technical Presentation Only: ISPS 2020-1902. Investigation of Smear Formation Mechanism From Dlc Film by Heating. Author: Hiroshi Tani. Submission Code: 16111	Technical Paper Publication: ISPS 2020-1927. Derivation and Evaluation of a Poincare-Bendixson Theorem Based Target Acceleration Computation Algorithm for Autonomous Driving on Inverse TTC and Time Headway Plane. Author: Hye-Won Lee. Submission Code: 16672
16:55	17:10	4:55 PM	5:10 PM	7:55 PM	8:10 PM	Room #1 Q&A - LIVE		Room #2 Q&A - LIVE	
17:10	17:20	5:10 PM	5:20 PM	8:10 PM	8:20 PM			Break	
17:20	17:55	5:20 PM	5:55 PM	8:20 PM	8:55 PM	8:20 PM	9:05 PM	Moderator: Tom Constable (Live) Introduction: Dr. Abhishek Srivastava Keynote Speaker #1: Dr. Siva Sivaram - "Storage Mitosis"	
								Keynote Q&A	
17:55	18:05	5:55 PM	6:05 PM	8:55 PM	9:05 PM			Meal Break	
18:05	18:25	6:05 PM	6:35 PM	9:05 PM	9:35 PM			Break	
18:35	19:15	6:35 PM	7:15 PM	9:35 PM	10:15 PM	9:35 PM	10:30 PM	Room #1 Session Chair: Prof. Wanchin Kim Track 2: Optical Imaging Devices and Opto-mechatronic Systems & Smart Materials Technical Paper Publication: ISPS 2020-1916. Design of a New Long-Time Continuous Photoplethysmography Signal Acquisition System to Obtain Accurate Measurement of Heart Rate. Authors: Rajeev Pandley, Paul C.-P Chao. Submission Code: 16161	Room #2 Session Chair: Prof. Kyoung-Su Park Track 4-2: Dynamics and Control for Future Technologies II Technical Presentation Only: ISPS 2020-1908. Controller Optimization for a Rotary Motion. Author: Ho Seong Lee. Submission Code: 16167
								Technical Paper Publication: ISPS 2020-1924. Design of a Reduce Neural Network Model for the Accurate Measurement of Blood Pressure. Authors: Rejeeve Pandley, Paul C.-P Chao. Submission Code: 16226	Technical Paper Publication: ISPS 2020-1914. Robot Manipulator Vibration Resistance Control Based on Physical Model. Author: Ting-Sheng Chen. Submission Code: 16173
								Technical Paper Publication: ISPS 2020-1941. Design of Optical Scanner for Adaptive Drive Beam Technology With Efficiently Distributed Optical Power. Author: Hyun Choi., Wanchin Kim. Submission Code: 18036	Technical Presentation Only: ISPS 2020-1921. Soft In-Pipe Crawling Robot. Author: Jia-yang Juang. Submission Code: 16198
								Technical Presentation Only: ISPS 2020-1952. Improvement of Measuring Precision via Image Processing Approaches in Cnc Tool Regrinding Process. Author: Hongseok Youn. Submission Code: 18680	Technical Paper Publication: ISPS 2020-1928. An Investigation on Steering Sensor Fault Reconstruction of Autonomous Driving for Functional Safety Using Sliding Mode Observer. Author: Kwang-Seok Oh. Submission Code: 16225
19:15	19:30	7:15 PM	7:30 PM	10:15 PM	10:30 PM	Room #1 Q&A - LIVE		Room #2 Q&A - LIVE	
19:30	19:40	7:30 PM	7:40 PM	10:30 PM	10:40 PM			Break	
19:40	20:10	7:40 PM	8:10 PM	10:40 PM	11:10 PM	10:40 PM	11:25 PM	Room #1 Session Chair: Prof. Wanchin Kim Technical Presentation Only: ISPS 2020-1957. A Study on the Image Formation of the Spookfish Reflection Eye. Author: Hocheol Lee. Submission Code: 18708	Room #2 Session Chair: Prof. Kyoung-Su Park Technical Paper Publication: ISPS 2020-1926. Development of a Self-Parameter Tuning Based Adaptive Sliding Mode Observer for Input Fault Reconstruction of Longitudinal Autonomous Driving. Author: Tae-Jun Song. Submission Code: 16665
								Technical Paper Publication: ISPS 2020-1931. Finger-Like Mechanism Using Bending Shape Memory Alloys. Author: Ali Hussein. Submission Code: 16852	Technical Paper Publication: ISPS 2020-1956. Development of an Adaptive Prediction Time Horizon Based Model Predictive Steering Control Algorithm for Autonomous Vehicle With Disturbance Estimation. Author: Kwangseok Oh
								Technical Paper Publication: ISPS 2020-1959. Magnetolectric Coupling Behavior in High Frequency Regime of the Nano Bi-Layer L-T Mode Bar Structure. Authors: Treetep Saengow, Rardchawadee Silapunt. Submission Code: 18526	Technical Presentation Only: ISPS 2020-1964. Mask-Substrate Gap Control System for Exposure Equipment. Author: Raehun Jung, Young-bong Bang. Submission Code: 16409
20:10	20:25	8:10 PM	8:25 PM	11:10 PM	11:25 PM	Room #1 Q&A - LIVE		Room #2 Q&A - LIVE	
Day 2 - Thursday June 25, 2020									
15:00	15:35	3:00 PM	3:35 PM	6:00 PM	6:35 PM	6:00 PM	6:45 PM	Introduction: Dr. Abhishek Srivastava Keynote Speaker #2: Dr. Bernhard Knigge - "The Evolution of the Head-Disk Interface"	
15:35	15:45	3:35 PM	3:45 PM	6:35 PM	6:45 PM			Keynote Q&A	
15:45	15:55	3:45 PM	3:55 PM	6:45 PM	6:55 PM			Break	
15:55	16:25	3:55 PM	4:25 PM	6:55 PM	7:25 PM	6:55 PM	7:50 PM	Room #1 Session Chair: Dr. Murthy Peri Track 1-2: Fundamentals on Energy Assisted Magnetic Recording & HDD Mechanics II, Track 5-1: Micro/Nano & Biomedical Mechatronic Systems I Technical Paper Publication: ISPS 2020-1950. Disk Protrusion Measurement in a Back-Heating Study for Heat Assisted Magnetic Recording. Author: Shaomin Xiong. Submission Code: 18558	Room #2 Session Chair: Dr. Rahul Rai Track 6: Smart Sensors and Actuators Technical Presentation Only: ISPS 2020-1905. Analysis of Vibration and Sound Radiation Due to Haptic Rendering on a Plate. Author: Whee Jae Kim. Submission #: 16118.
								Technical Presentation Only: ISPS 2020-1949. Hamr Head Thermal Characterization Using Gst Pcm Technique and Opto-Thermal Simulation. Author: Haoyuan Mu. Submission Code: 18458	Technical Presentation Only: ISPS 2020-1929. Miniaturized 1 d.o.f Electromagnetic Linear Actuator. Author: Bu Hyun Shin. Submission Code: 16748
								Technical Paper Publication: ISPS 2020-1960. A Method to Reduce Head-Disk Interface (Hdi) Degradation Risk During Thermal Asperity (Ta) Mapping in a Hard Disk Drive. Author: Abhishek Srivastava. Submission Code: 18669	Technical Paper Publication: ISPS 2020-1904. A 2nd-Order Continuous Time Delta Sigma Modulator for Photoplethysmography Analog Front-End. Author: Eka Fitrah Pribadi. Submission Code: 16134
16:25	16:50	4:25 PM	4:50 PM	7:25 PM	7:50 PM	Room #1 Q&A - LIVE		Room #2 Q&A - LIVE	
16:50	17:00	4:50 PM	5:00 PM	7:50 PM	8:00 PM			Break	

17:00	17:30	5:00 PM	5:30 PM	8:00 PM	8:30 PM	8:00 PM	8:45 PM	<p>Room #1</p> <p>Session Chair: Dr. Murthy Peri</p> <p>Technical Paper Publication: ISPS 2020-1962. Ranking of Thermal Asperity (Ta) Interaction During Seeking Under Various Fly-Height Conditions. Author: Abhishek Srivastava. Submission Code: 18753</p> <p>Technical Paper Publication: ISPS 2020-1945. Analytical Modeling of an Implantable Opto-Mechanical Pressure Sensor to Study Long Term Drift. Author: Alex Phan. Submission Code: 18250</p> <p>Technical Paper Publication: ISPS 2020-1946. Dissolution Behavior of Silicon Nitride Thin Films in a Simulated Ocular Environment. Authors: Christoph Schade, Alex Phan. Submission Code: 18289</p>	<p>Room #2</p> <p>Session Chair: Dr. Rahul Rai</p> <p>Technical Paper Publication: ISPS 2020-1918. A Novel Energy Harvester in a Backpack via Precision Sensing of Back Electromotive Force. Author: Wen-wei Yen. Submission Code: 18636</p> <p>Technical Paper Publication: ISPS 2020-1913. Quadratic Interpolation Based on Robot Trajectory Denoising for Human Motion Imitation. Author: Ruo-Syuan Mei. Submission Code: 16169</p> <p>Technical Paper Publication: ISPS 2020-1951. A New Wireless Power Transfer Circuit With a Single-Stage Regulating Rectifier for Flexible Sensor Patches. Author: Wen-Wei Yen. Submission Code: 18636</p>
17:30	17:45	5:30 PM	5:45 PM	8:30 PM	8:45 PM	Room #1 Q&A - LIVE			
17:45	17:55	5:45 PM	5:55 PM	8:45 PM	8:55 PM	Break			
17:55	18:30	5:55 PM	6:30 PM	8:55 PM	9:30 PM	8:55 PM	9:40 PM	<p>Introduction: Dr. Murthy Peri</p> <p>Keynote Speaker #3: Dr. John Morris - From Spinning Rust to the Atomic Scale"</p>	
18:30	18:40	6:30 PM	6:40 PM	9:30 PM	9:40 PM	Keynote Q&A			
18:40	18:50	6:40 PM	6:50 PM	9:40 PM	9:50 PM	Break			
18:50	19:30	6:50 PM	7:30 PM	9:50 PM	10:30 PM	9:50 PM	10:45 PM	<p>Room #1</p> <p>Session Chair: Prof. Kwangseok Oh</p> <p>Track 5-2: Micro/Nano & Biomedical Mechatronic Systems II</p> <p>Track 4-3: Dynamics and Control for Future Technologies III</p> <p>Technical Paper Publication: ISPS 2020-1963. Investigation of a Biofilm Inhibiting Zinc-Silver Oxide Urinary Catheter Coatings. Author: Simonas Vaitkus. Submission Code: 18584</p> <p>Technical Paper Publication: ISPS 2020-1917. A Switch Module Stacked With 4/3 Igbts With Balanced Voltage Sharing for Pef Applications. Author: Ba-Sy Nguyen. Submission Code: 16144</p> <p>Technical Paper Publication: ISPS 2020-1923. The Multi Wavelength Arrayed Flexible Ppg Sensing Patch for to Estimate Heart Rate and Blood Oxygen. Author: Yu Ting Chen. Submission Code: 16205</p> <p>Technical Presentation Only: ISPS 2020-1947. Using Mems Accelerometer With Edge Computing for Intelligent Vibration-Based Diagnostics System. Author: Tseyi Tu. Submission Code: 18269</p>	<p>Room #2</p> <p>Session Chair: Prof. Paul Chao</p> <p>Track 7: Advanced Simulation in Science and Engineering,</p> <p>Track 8: Flexible Media Handling Machines and Printed Electronics, Exposing and Printing Technologies</p> <p>Technical Presentation Only: ISPS 2020-1932. Smart Junction Box Implementation for Low-Voltage Electronics in Electric Vehicles. Author: Soo-Whang Baek. Submission Code: 16778</p> <p>Technical Presentation Only: ISPS 2020-1930. Improvement of Defrost Performance of Electric Vehicles Using Multi-Phase Flow Simulation. Author: Sangwook Lee. Submission Code: 16771</p> <p>Technical Presentation Only: ISPS 2020-1933. Big-Data Approach Based on Fuel Efficiency Estimation for Predicting Driving Range of Battery Electric Vehicles. Author: Soo-Whang Baek. Submission Code: 16897</p> <p>Technical Paper Publication: ISPS 2020-1915. System Identification With Particle Swarm Optimization Method for Nonlinear Dynamic Systems. Author: Manuel Fernández. Submission Code: 16168</p>
19:30	19:45	7:30 PM	7:45 PM	10:30 PM	10:45 PM	Room #1 Q&A - LIVE			
19:45	19:55	7:45 PM	7:55 PM	10:45 PM	10:55 PM	Break			
19:55	20:25	7:55 PM	8:25 PM	10:55 PM	11:25 PM	10:55 PM	11:40 PM	<p>Room #1</p> <p>Session Chair: Prof. Kwangseok Oh</p> <p>Technical Paper Publication: ISPS 2020-1955. Vision-Based Moving Obstacle Avoidance for Cable-Driven Parallel Robots Using Improved Rapidly Exploring Random Tree. Author: Jiajun Xu. Submission Code: 18705</p> <p>Technical Paper Publication: ISPS 2020-1912. Development of Human-Like Motion Planning Method Using Task Constrained for Humanoid Robotic Arm With Non-Offset Wrist. Author: Yi-Hao Zhu. Submission Code: 16171</p> <p>Technical Paper Publication: ISPS 2020-1954. Wettability Control of Pdms Surface Coated on the Glass Using Ultrasonic Vibration Treatment. Author: Dong-su Park. Submission Code: 18703</p>	<p>Room #2</p> <p>Session Chair: Prof. Paul Chao</p> <p>Technical Paper Publication: ISPS 2020-1925. Mass Production and Film Thickness Control of Meso Porous Silica Thin Films. Author: Makio Tamada. Submission Code: 16165</p> <p>Technical Paper Publication: ISPS 2020-1936. Improvement of Wound Roll Defects and the Effect of Film Properties. Author: Takeshi Nishida. Submission Code: 16967</p> <p>Technical Paper Publication: ISPS 2020-1938. Tribology Characteristics Between Polymer Nanosheets and Human Skin. Author: Shunsuke Nakano. Submission Code: 16207</p>
20:25	20:40	8:25 PM	8:40 PM	11:25 PM	11:40 PM	Room #1 Q&A - LIVE			
20:40	21:00	8:40 PM	9:00 PM	11:40 PM	12:00 AM	Room #2 Q&A - LIVE			
20:40	21:00	8:40 PM	9:00 PM	11:40 PM	12:00 AM	Awards and Closing Remarks - Rahul Rai ; Dr. Abhishek Srivastava to facilitate Awards (announce and produce slides)			