SURF Colloquium Plenary Session (Admin 101 Building/Green Auditorium)

Time	Agenda
9:00A	**Welcome**
	Session Moderator: TBA
9:15A	**CNST** *Thomas Marsh* : Solving the Shortest Path Optimization Problem using a
9:40A	**CTL** *Morgan Warner* : Stop Interrupting Me(ssages)
10:05A	**EL** *Lela Bones: Visualizing and Synthesizing Data from Maintenance Logs for Smart Manufacturing Analysis*
10:30A	Break
10:45A	**ITL** *Naveen Shankar* : Using the Arduino for True Random Number Generation
11:10A	**MML** *Elena Musteata:* Synthetic Biology for Living Sensors: Characterizing Fitness Landscapes of Engineered Genetic
11:35A	**NCNR** *Paul Neves:* All Tied Up in Knots: Skyrmions in Chemically Substituted Cu2OSeO3
12:00P	**PML** *Alex Sredenschek* : Silicon Surface Functionalization for Battery
1**2:25P**	**Special Programs** *Alexsandra Corrigan:* A Cell-ing point for Standards: Terminology and Analytical Methods for Biotechnology Standards

SURF Colloquium Parallel Session: Tuesday August 7, 2018 (Afternoon)

	Lecture Room A	Lecture Room B	West Square	Heritage Room	Lecture Room D
	MML/NCNR_ChemBio	**MML/NCNR_MatSci**	**ITL**	**EL**	**PML_PL**
Time	Moderator: Dr.Andre Striegel	Moderator: Dr. Jeanita Pritchett	Moderator: Michaela Iorga	Moderator	Moderator: Daniel Hussey
2:20P	*Tiffany Cao* :Characterization of electronic cigarette aerosol on hard surfaces	*Alexis Brake:* Ultrasound for materials research: Developing methods to quantify internal displacements in soft material tissue phantoms	*Matthew Kupferschmid* : Understanding P@$$w0rds – password rule comprehension vs password generation	*Timothy Kim* : Solar Microgrid Performance and Optimization	Zachary Whiting: Graphite Calorimetry with a Mach-Zehnder Interferometer
2:40P	*Zachary Clifford:* Physical and Chemical Transformation of Silver Nanomaterial Containing Textiles After Use and Disposal	*Faraz Burni:* Ageing of Poly(*p* -phenylene terephthalamide) Fibers Used in Soft-Body Armor	*Sophia Abraham* : Authentication of RFID Communication with Wireless Identification and Sensing Platform (WISP)	*Abhinav Pandey* : A Digital-twin of an IEEE 1451 Smart Temperature Sensor for CPS/IoT Research	*Rhett Croley:* Data Analysis of Alpha-Gamma Neutron Monitor Technique
3:00P	*Shakira Gonzalez:* Characterization of Fluorescent Dyes for the Assignment of Fluorescence Intensity to Calibration Microspheres for Flow Cytometry	*Patrick Ott:* Structure-property relationships in multi-functional hierarchical fiber nanocomposites	*Xinyu Xiong* : Z Model for Next Generation Access Control (NGAC) Mechanism	*Alejandra Lopez Moralez* : Data Collection and Management for Critical Buildings to Support the Investigation of Hurricane Maria's Effect on Puerto Rico	*David Mullins:* Neutron Bragg Edge Imaging
3:20P	*Brianna Higgins:* Design and synthesis of mechano- responsive fluorophores for localized visualization of damage in polymer composites	*Sejal Shah:* Rheology of shear thickening fluids		*Angel Miranda* : Infrastructure Support of Critical Buildings	*Alexander Todd: Far* Field Neutron Interferometry
3:40P	*Julianna Koehl:* Optimization of Ring Expansion Cationic Polymerization as a Route to Ideal Networks	*Hallie Miller:* Illuminating the transparency of glass elemental composition	*Arsen Klyuev* : Using Block Matrices to Provide Erasure Capabilities to Blockchains Without Losing Integrity	*Harrison Kraus* : Analysis of Garage Door Failures and Subsequent Effects on Residential Building Performance during the May 22, 2011 Tornado in Joplin, MO	*Sai Meghasena Chavali*: Systematics in the Neutron Lifetime Measurement
4:00P	*Claire Sturek:* Antimicrobial Properties of Novel Class V Restoratives	*Julia Trowbridge:* Improving the light extraction efficiency of zinc oxide nanofin LEDs	*Richard Williams* : Automatic Verification of Cryptographic Algorithms using SAW	*Timothy McIntyre* : Analysis of Damage Parameters and Degree of Damage Variability in Residential Building Performance from the 2011 Joplin Tornado	*Peter Orban:* Ionization Chamber Response Dependence on Amb ient Environmental Conditions
4:20P	*Ha Tran* : Identification and Quantification of Allergenic Milk Proteins in Food	*Keshav Bhatnagar:* Developing Operation Procedures for the Meca500 to Autonomously Swap Powder Samples in Divergent and Parallel Beam Diffractometers (DBD and PBD).	*Sydney Pugh* : Developing Effective Test Strategies for Cryptographic Algorithm Implementations	*Andrew Seamone* : Structural Testing of Enhanced Steel Gravity Connections for the Mitigation of Disproportionate Collapse	*Francis Walz:* An active LCR circuit for cooling highly charged ions captured in an ion trap
4:40P		*Michael Hamati:* Synthesis and Characterization of Monodisperse Cerium Oxide Nanomaterials	*Samantha Halam* : Analyzing Cybersecurity in Academia Regarding the Botnet Report		*Gabriel Alberts*: PrediCTing Errors: Test Method Development for CT Systems

SURF Colloquium Parallel Session: Wednesday August 8, 2018 (Morning)

	Lecture Room A	Lecture Room B	West Square	Heritage Room	Portrait Room
	MML/NCNR_ChemBio	**MML/NCNR_MatSci**	**ITL**	**EL**	**PML_PL**
	Moderator: Dr. Ashley Beasley Green	Dr. Guebre Tessema, NSF	Moderator: John Schlueter	Moderator	Moderator: Uwe Arp
9:00A	*Jack Blitz:* Droplet Digital PCR Assay Development of Clinical Reference Material for Epstein Barr Virus DNA	*Samantha Isaac* : Monte-Carlo Exploration of Focused Neutron Guide Geometries	*Jesse Zhu* : Use of lightfield cameras for capturing footwear impression: best practice and comparison	*Rushad Antia* : localhost:3000/robotmonitor.html – Integrated Robot Monitoring System	*Michael Doris*: Encoding Arbitrary Phase and Amplitude Modes on Laser Light with A Digital Micro-Mirror Device
9:20A	*Sulan Wu:* Standardization of HER2 gene copy number variation measurements in liquid biopsy by digital PCR	*Hannah Burrall* : Optimization of 3He neutron spin filters for the neutron spin echo spectrometer	*Paul Steves* : Augmented Reality Systems and Associated Metrics and Analytics	*Nickolas Eusman* : Railroad grade crossing simulator for use in cybersecurity testbed	*Benjamin Eckardt*: Increasing Efficiency of Temperature Controllers in the Laboratory
9:40A	*Adam Broerman:* A Computational Workflow for Annotating LC-MS Metabolomics Data from Biomanufacturing Cell Cultures	*Nathaniel Kaneshige* : Simulation of prompt gamma emission tomography by Compton scattering and the implementation of a neutron tomography system	*Paul Armstrong* : Virtual Reality as a tool for Cell Microscopy	*Brian Galfond* : Measuring and Diagnosing Machine Tool Errors Using an Inertial Measurement Unit and Inductive Proximity Sensors	*Jacob Siegel:* Constructing a Primary Vacuum Standard using Bitter Electromagnets
10:00A	*Candace Young:* Development of Metabolomics Quality Control Materials for Precision Medicine and Strategies for Forensic Hair Analysis	*Ryan Underwood* : Determination of crystallite orientation distribution function (ODF) from neutron diffraction data	*Joseph Waysack* : Monitoring Super Computer Simulations	*Meir Kreitman* : Characterization of Single Scan Laser Tracks on Nickel Super Alloy 625 Using Nanoindentation	*Dylan Kirsch:* Raman Spectroscopy of Tin-based Intermetallic Thin-Film Libraries for Next Generation Rechargeable Battery Anodes
10:20A	*Sabrina Martin:* Drop-On-Demand Inkjet Printing for Preparation of Oral Drug Delivery Films	*Abigail Wilson* : Applying Reinforcement Learning to the Determination of Crystal Structures with Neutron Diffraction	*James Biggins* : Virtual Tours: Experiments in Monoscopic and Stereoscopic Virtual Reality	*James Arnold* : Creating a Database for Designing Energy Efficient Houses	*Stephen Meek*: An improved method to measure very low fluid flow rates for diagnostic medical and biotechnology applications
10:40A	Break				
	Moderator: Dr. Christine Bergonzo	Dr. Leonard Spinu, NSF	Moderator: Ryan Evans	Moderator	Moderator: David Allen
11:00A	*Kunal Dharmadhikari* : Structural Basis of ClpS Specificity Probed by Molecular Dynamics Simulations	*Joshua Devorkin* : Cellulose under pressure for new biopolymers	*Qing-Hai Li* : Analysis of Microfluidic Flow Rate Measurements	*Marco Capraro* : Data Management Strategy	*James McLaurin*: Investigation of substrate suitability for focused helium ion beam machined nanofluidic structures
11:20A	*Elijah Williams:* Improving the Measurement Quality of Hydrogen Deuterium Exchange Mass Spectrometry	*Zachary Riedel* : Capillary µRheoSANS for High Shear Rate, Low Volume Studies	*Felix Perez* : Facilitating Development of Alternatives to Monoclonal Antibodies Through Readily accessible Web Application Services	*Jonathan Garner* : Advanced Sensing Development to Support Robot System Prognostics and Health Management	*Eileen Stauffer*: Evaluation of FPGA-Based Laser Stabilization
11:40A	*Allison Horenberg:* Cell Viability in Tissue Engineering Scaffolds	*Alexa Cano* : Phase Behavior and Morphology of Microemulsions in a Polymer-Surfactant System	*Kevin Zong* : Software for Single Photon Counter Interfacing and Data Analysis	*Peter Mnev* : Analyzing Agility of Robot Systems through Simulation	*Hunter Wages*: Using Magnetic Field Inversion to Produce Current Density and Magnetization Distribution Images
12:00N	*William Jones:* Assessments and quantification of mineralization in dental pulp microtissues by phase imaging	*Caleb Wigham* : Crosslinking silica-based nanoporous networks under ambient conditions	*Henry Schmale* : Benchmarking Numerical Approaches for Solving the Time-Dependent Schrodinger Equation in One Dimension	*Esteban Segarra* : Integration of Wearable Sensors into Virtual Reality and Augmented Reality Interfaces for Human-Robot Interaction	*Galahad Wernsing: Real Time Data Analysis and Phase Correction for Optical 2D Spectroscopy*
12:20P	*Grace Henry*: Purification of Chorismate Mutase from M. tuberculosis for Novel Inhibitor Evaluation	*Krista Balto* : The Conformation of a Hydrophilic Di-block Copolymer on Silica	*John Nolan* : Compositional Approaches to Power Flow Problems	*Xiang Li* : Predictive Modeling of Collaborative Robot Interactions	*Wiley Hundertmark*: Using Optical Methods to Investigate Productivity and Carbon Fluxes in Urban Forests
12:40P	Lunch				

SURF Colloquium Parallel Session: Wednesday August 8, 2018 (Afternoon)

	Lecture Room A	Lecture Room B	West Square	Heritage Room	Portrait Room
	MML/NCNR_MatSci A	**MML/NCNR_MatSci B**	**ITL**	**EL**	**PML-Electrical Eng**
	Moderator: Prof. Mohamad Al-Sheikhly	Dr. Engin Serpersu, NSF	Moderator: Derek Juba	Moderator	Moderator: Richard Steiner
1:30P	*Rachel Orenstein:* Building a resource registry and data repository for High-Throughput (Combinatorial) Experimental materials research	*Temiloluwa Okusolubo* : Correlating Gramicidin Ion-Channel Formation to Artificial Membrane Dynamics	*Varsha Vejalla* : Measuring Climate Change using Ice Cores	*Frederick Norwood* : Measurement and Tuning of Motorized-Dynamic Bending and Calibration Machine to Test Disposable Human-Collaboration-Robotics Safety Artifacts	*Laurelia May-Pohlman*: An Improved Reference for Spectrograph Calibration at Low-to-Moderate Resolutions
1:50P	*Ryan Smith:* Predicting the Elastic Properties of Metallic Glasses with Machine Learning	*Emily Blick* : Exploring the rheological properties of dense lipid vesicle solutions as models for liposomal nanomedicines	*Golda-Meir Chiong* : Computational Reproducibility	*Omar Aboul-Enein* : Performance Measurement of a Manipulator-on-a-Cart	*Merrik Malin*: High Speed Control Circuit for Single Photon Avalanche Detection
2:10P	*James Riet:* An Evaluation of Polymer Encapsulation as a Means of Minimizing the Degradation of TNT for Explosive Trace Detectors	*Carrie Stemple* : Characterizing Adjuvant-Protein Interactions During Freeze-Thaw Cycles	*David Miller* : Stochastic Modeling of Round-off Errors in Scientific Computing	*Katrina Carlin* : Accelerated Weathering of Graphene-Polymer Nanocomposites	*Jeffrey Borres*: Robotics mass exchange for advanced metrology
2:30P	*MaKayla Turner:* Interaction of Water with Titanium Oxide Surfaces: A Theoretical Study	*Gregory Suczewski* : Incorporation of the Beta Approximation in SASView	*Alejandro Vega* : The HTGS Generator: A Tool for Generating Code for Multi-core systems	*Samuel de Oliveira* : Degradation of Field-Exposed Photovoltaic Backsheets	*Vaishnavi Murthy: Environmental Monitoring and Control for Metrological Applications*
2:50P	*Steven Hall:* Charge Expanded Ensemble for Efficient Sampling of Ionic Systems		*Aidan Malanowski* : Combining syntactic parsing and vector semantics for keyphrase extraction for the root- and rule-based method	*Joshua Hubbard* : Essential Work of Fracture and Digital Image Correlation Analysis of Crack Propagation in PET after Accelerated Weathering	Sumaiyah Sarwat: Watt-Hour Meter Testing
3:10P	Break				
	CNST	**MML/NCNR_MatSci**	**ITL**	**EL**	**PML-Electrical Eng**
	Moderator: *Liya Yu*	Moderator: Dr. Charles Ying	Moderator: Lotfi Benmohamed	Moderator	Moderator: Maritoni Litorja
3:20P	*Emma Rogers* : The Role of Directional Shear Flow in the Inflammatory Response of Endothelial Cells	*Katie Behnert* : Physical Components of Secondary Pump Condition-based Monitoring System	*Nicholas Nachega: A Test Transport Layer Security (TLS) Server for the DNSSEC Authentication Chain Extension*	*Trinny Lai* : Analysis of Automotive Paints under Weathering Conditions	Gabriela Arp: Spectral Analysis of Glycated Hemoglobin
3:40P	*Shannon Jin* : Study of DNA Origami Under Shear Conditions	*Abdullah Weiss* : Digitization of a Secondary Pump Condition-based Monitoring System	*Surafel Hailu* : NDN-based IoT prototype deployment by using the ESP32 and Raspberry Pi platforms	*Christopher Littrell* : Analysis of the Degradation of Polymeric Components Used in Photovoltaic (PV) Systemsn	*Alana Dee*: Comparison of Current Detection Methods in the 3rd Generation Dual Source Bridge for DC Resistance Measurements
4:00P	*Holland Rhodd-Lee* : A New Approach to Measuring Neuronal Differentiation in P19 Embryonal Carcinoma Stem Cells	*Omar Cavazos* : NBSR Thermodynamic Performance Analysis		*Vanda Luu* : Key Parameters Effecting Polyester Weathering	*Kevin Ho:* Development of Microgrid Simulation System for Hardware-in-the-Loop Study of Power Grid Monitoring and Control
4:20P		*Kirill Stakhovsky* : Operating a Virtual Nuclear Reactor using HoloLens Technology		*Christopher Carangelo* : Development of Cement 3 D Printing Test Artifact	*Isabel Damazo:* Developing a Method for Measuring Intracellular Calcium Concentrations
4:40P		*Aubrie Weyhmiller* : Online Platform for Radiological Computations		*Pablo Dean* : Mineralogical Phase Analysis of Portland Cement by X-ray Diffraction and Scanning Electron Microscopy	*Mathew Fu*: A Virtual Kelvin Probe Microscope
5:00P	End				

SURF Colloquium Parallel Session: Thursday August 9, 2018 (Morning)

	Lecture Room A	Lecture Room B	West Square	Heritage Room	Portrait Room
	CNST	**MML/NCNR_MatSci**	**ITL**	**EL**	**PML-Electrical Eng**
	Moderator: *Liya Yu*	Moderator: Dr. Jonathan Seppala	Moderator	Moderator	Moderator:
9:00A	*Erik Isele* : All-dielectric Terahertz Metasurfaces: Fabrication and Characterization	*Rachel Devers:* The development of an electron microscopy dossier		*Ann Collins* : Community Resilience	
9:20A	*Devin Jessup* : Simulating Magnetic Skyrmion-Skyrmion Interactions	*Simin Manasiya:* Polyelectrolyte stiffness in different salt concentrations and salt types		*Michael Bichnevicius* :Evaluation of a CO2 Ground-Source Air Conditioner	
9:40A	*Hengming Li* : Process Development for Area-Selective Atomic Layer Deposition using a Novel Photoresist	*Ethan Finlay:* Exploring Clinically Relevant Approaches to Reduce Polymerization Stress of Dental Composites		*John Walsh* : Measuring Performance of an Airflow-Optimized Condensing Unit	
10:00A	*Stephen Tovcimak Jr.* :Fabrication and Characterization of the Surface and Interfacial Effects on the Directed Self-Assembly of Block Copolymers (BCPs)	*Klara Keim:* Development of Microfluidic Platforms Recapitulating Oral Microvasculature		*Justin Sorra* : Laboratory Validation of HVAC-Cx Building Commissioning Software	
10:20A				*Jennifer Bergeson* : Powering the Internet of Things: Harvesting Ambient Energy with Photovoltaics	
10:40A	Break				
	MML/NCNR MatSci A	**MML/NCNR_MatSci B**	**CTL**	**EL**	**Special Programs**
	Moderator: Dr. Brandi Toliver	Moderator: Dr. Wyatt Vreeland	Moderator: David Griffith	Moderator	Moderator:
11:00A	*Sally Jiao:* Determining Protein and Polymer Stability through Thermodynamic Extrapolation and Active Learning	*Eric Anderson:* ROMP Bottle Brush Polymer Structure Characterization via NMR and Computational Methods	*Hiwot Gezahegn* : Analysis and Validation of Mission-Critical Push-To-Talk (MCPTT)	*Patrick Feeney* : Automated Translation of MATLAB Programs to Python to Increase Accessibility and Cross-Platform Compatibility of Open Source Software	*Candice Ionescu*: China's Changing Standards Infrastructure: A New Approach to the Global Stage
11:20A	*Kamryn Kant:* Computing Thermodynamic Properties of Fluids Confined in Nanoporous Materials with High-throughput Molecular Simulations	*Viviana Rodriguez Cardenas:* Method Development and Depth-Profiling Degradation Measurements of Beach Plastics	*Steven Fan* : Video Streaming Models	*Luis Serrano* : Validation of Fire Dynamics Simulator	*Ángel Jarel Resto García and Yinaris Guzman Cruz* : Advanced Manufacturing & Development and growth of technology-based businesses in Puerto Rico
11:40A	*Julie Yagodich:* Encoding Gas Adsorption Isotherms for Standard Reference Data and Use	*David Yoon:* Measuring Viscosity Through a Microliter Capillary Rheometer	*Zachary Luckabaugh (SHIP)* : A Graphical User Interface for Public Safety Communications Simulations	*Jacob True Furrh* : Hurricane Maria: Reconstructing Flood Hazards through Emergency Messaging	Zachary Taylor: Technology Transfer, Invention Disclosures, and Supporting the MBDA Mission
12:00N	*Shannon Bernier:* Thermochemical analysis of SRM fuel blends using the laser-driven thermal reactor	*Jeremy Filteau:* Mechanism behind rapid protein aggregation by novel azide-assisted chemistry		*William Saar* : Single and Double Fence Flame Spread in the Wildland Urban Interface	
12:20P	*Nicholas Strogen:* The Effects of Chlorine Exposure on the Performance and Morphollogy of Polyamide Membranes	*Alison Kriz:* High-Aspect Ratio Sulfur-MoS2-Carbon Heterostructure Electrode Materials for High-Performance Li-S Batteries: Design and Multiscale Characterization by Advanced Focused Ion and Electron Beam Techniques		*Gregory Fiola* : Calorimetry Reflexes: Characterizing Response Time of Fire Measurements	
12:40P	Lunch				

SURF Colloquium Parallel Session: Thursday August 9, 2018 (Afternoon)

	Lecture Room A	Lecture Room B	Library	Heritage Room	Portrait Room
		MML/NCNR_MatSci	**Various OU's**	**EL**	
		Moderator: Dr. Rebecca Zangmeister	Moderator:	Moderator	
1:30P		*Ryan Zambrotta:* Atomistic Simulations of the Glass Transition in Small-Molecular Organic Glass Formers	*Elijah Peake (ITL)* : Visualization Software to Analyze Password Policies	*Angelo Calvo* : Case studies for model based requirement generation using the VVUQ pattern	
1:50P		*Eli Fastow:* Annealing Temperature and Underlayer Effects on Perpendicular Magnetic Anisotropy Energy of $Co_{20}Fe_{60}B_{20}$/MgO	*Kevin Boby (ITL)* : Automated Segmentation and Classifcation of Concrete Images	*Ryan Fisher* : Testing of the MTConnect - OPC-UA Companion Specification	
2:10P		*Daniel Ng:* Optimizing Additively Manufactured Inconel 625 for Reliable Performance	*Luke Bezn (ITL)* : Launch and Demonstration of the NIST Homogeneity Assessor	*Cesar Tamayo Claro* : Incorporating Unit Manufacturing Process Models into Life Cycle Assessment Workflows	
2:30P		*Charlie Nitschelm:* Mechanical Measurements of Inconel 625 for Dynamic Forming Simulations		*Alexander Lewis* : Ontology Engineering for Interoperable Manufacturing Process Information	
2:50P		*Eli Janzen:* Calphad Assessments of the Co-Re-Ta and Mo-Ti Systems and Practical Application to the Optimization of hBN Crystal Growth		*Michael Roa* : Linking As-Planned and As-Executed Manufacturing Data in Near-Real Time	
3:10P	Break				
		MML/NCNR_MatSci			
	Moderator:	Moderator: Dr. Anthony Kotula	Moderator:	Moderator	
3:20P		*Kevin McCright:* Uncertainty Quantification and Propagation in Carbon Steel Machining		*Xinran Sun* : Mass Customization Activity Modeling and Standards Landscape	
3:40P		*Leah Borgsmiller:* Impedance Photocurrent Device Analysis of Organic Photovoltaics		*Simin Li* : Additive Manufacturing (AM) Bench Data Processing and Integration for the NISTAM Materials Database	
4:00P		*Emily Roe:* Blade-coating as a scalable route to metal oxide field-effect transistor fabrication		*William Brannon* : Development of Automated Data Acquisition of Hydration Reaction in Microstructue	
4:20P		*Galen Vincent:* Process Optimization of Blade-Coated Polymer Blend Thin Film Transistors		*Alexander Brassel* : Demystifying the performance bottleneck in Rich UI Web-based Applications	
4:40P		*Jordan Winetrout:* Predicting Phase Behavior in Organic Photovoltaic Devices			
5:00P	End				