The Welch Foundation

Welch Conference on Chemical Research

CONFERENCES & RETREATS

POSTER SESSION

UNDERGRADUATE STUDENTS

- Ferguston, Joshua (Texas A&M University) – “Unlocking Edge-Site Activity in MNenes for Green Electrochemical Ammonia Production”
- Haque, Rabia (The University of Texas at San Antonio) – “Structure-Guided Design of Amido Cyanines (AmCy) for High Performance Near-Infrared Imaging”
- Huber, Rachel (Baylor College of Medicine) – “Knockdown of hnRNPM alters RNA localization and gene expression patterns at the nuclear lamina”
- Kalafatis, Dimitris (Texas A&M University) – “A New Machine-Learning Tool to Predict Metal-Protein Interactions”
- Kornegay, Alyssa (The University of Texas at San Antonio) –“Synergistic Combinations of AKT and BET Inhibitors Enhance Antitumor Activity inTriple-Negative Breast Cancer”
- Nashawati, Stefan (The University of Texas at San Antonio) – “SuFEx-Enabled Tyrosine Specific Bioconjugation of Near-Infrared Fluorophores”
- Nguyen, Quinn (University of Houston) – “Attention-Based RNA Secondary Structure Prediction Using Pretrained Langauge Models”
- North, Peyton (Wayland Baptist University) "Measuring Metastatic Movement: The Effects of Turmeric, Osha, Rosemary, Ginger, and Fenugreek on the Migration of 4T1 Murine Breast Cancer Cells"
- Penna, Gautam (The University of Texas at Austin) – "Modeling Protein and Membrane Complexes in cryo-EM Micrographs For Subtraction of Membrane Signal Using A Transformational Neural Network"
- Raskulinecz, Brittney (University of Houston-Clear Lake) – "Development of an Electrochemical Dual-Aptamer Sandwich Assay for Thrombin"
- Scott, Emma (Wayland Baptist University) – "Repair protein RecA binds weakly to tuberculosis DNA sequence where mutation leads to isoniazid drug resistance"
- Stewart, Serenity (The University of Texas Permian Basin) – "Two Steps to Target: A Cost-Effective Oxadiazole Analog of Topiroxostat for Xanthine Oxidase Inhibition"
- Walbridge, Sarah (Sam Houston State University) – "Exploring the reactivity of two Baeyer-Villiger monooxygenases for synthetic applications "
- Yuan, Zhenxi Paris (Baylor College of Medicine) – "Developing a Long-read Sequencing Platform for Isoform-resolved Subcellular mRNA Localization"

GRADUATE STUDENTS

- Afiza, Moriom (Texas State University) – "Immunomodulation Potential of Conductive Polymer Nanoparticle- Mediated Photothermal Therapy for Cancer Treatment”
- Al-Aman, D A Anwar (University of Houston-) – "Polyethylene Bottlebrush Homopolymers and Diblock Copolymers from Chain-end Functionalized Polyolefins”
- Almada, Nirvana (The University of Texas at Austin) – “Boron-Pyrrole-Indole (BOPYIN) Dyes: Synthetically Versatile and Scalable Type II Visible Light Photopolymerization Catalyst”
- Andras, Autumn and Fatima, Nehal (Texas A&M University) – "DNA-Inspired Functional Sulfurous Polymers from a Cyclic Monomer Derived from d-Thymidine"
- Annadurai, Hariharan (University of Houston) – "From Molecular Descriptors to Mechanistic Insight: ML for Crystal Growth Control"
- Ayala, Eduardo (University of Houston) – “Condensation-Driven Chain Swelling Unmasks Autoinhibited DNA-Binding Domain in Transcription Factors”
- Bhatt, Madhur (University of Minnesota) – "Rational Catalyst Design for the Ring-Opening Polymerization of Sustainable CO2-Derived -Lactones from 1,3-Dienes"
- Bhuiya, Sakib Hossain (Texas State University) – “Development of Stable Photothermal Hydrogels by Utilizing PEDOT Nanoparticles for Controlled Drug Delivery ”
- Bickle Molly, Chong-Yan Chen and Dani Noggle (Texas A&M University) – “Complex Polymer Materials via Simple Methods that Harness the Rich Regiochemistries and Stereochemistries of Carbohydrates in Concert with Other Natural Products”
- Bonacci, Matthew (Duke University) – “Synthesis and stereocomplexation of end-functionalized isotactic poly(propylene succinate) oligomers: Observed microstructure-property relationships”
- Brahma, Shuvo (Texas State University) – “Vapor Phase Deposition of Poly(3,4-ethylenedioxythiophene) onto Electrospun Commodity Polycaprolactone Nanofibers for Tissue Regeneratio
- Chauhan, Viral (University of Houston) – “Constructing Sustainable Epoxy Thermosets with Targeted Properties from Lignin"
- Chen, Katherine (Rice University) – "Temporal control of antigen release via surface-eroding core-shell microparticles for single-injection vaccination"
- Clark-ElSayed, Alia (The University of Texas at Austin) – “Design and characterization of peptide-responsive biosensors”
- Das, Srutashini (Texas A&M University) – “From Polyurethanes to Polysulfamates: SuFEx-Enabled “Macroisosteres” for Sustainable Materials”
- David, Ogonna (University of Houston) – “Overcoming Oxygen Limitations: Method Development for the Anaerobic Expression of ZapNIR1 in E. coli Top10 Cells”
- Deshpande, Sayyam (Texas A&M University) – “Low temperature structural batteries”
- Duncan, Connor (Texas A&M University) – “Corpus Christi Molecular Templating of Gemini Surfactants: Charge-Transfer-Driven Modulation of Self-Assembly and Interfacial Properties”
- Erzuah Marymoud (Baylor University) – “Reductive Cross-Coupling of Alkynes with Aryl Bromides via Zr/Pd Synergistic Catalysis”
- Gillett Leyla, Mick Kuo Kai-Hua and Guo Vivian (Texas A&M University) – " Bioinspired, Degradable, and Recyclable Redox-active Polymersfor Next-Generation Energy Storage Materials"
- Giri, Salina (University of Houston- Clear Lake) – “Ferrocene-Derived Hydrazides and Ferrocenophanes: Synthesis, Structure, and Electrochemical Anion Recognition”
- Haden, Brittain (Texas A&M University-Corpus Christi) – “Optimized Gold Nanoparticle Morphologies for Cancer Photothermal Therapy”
- Hall, Emily (Texas A&M University-Corpus Christi) – “Poly-lipoic ester coacervates for targeted remediation of organic small molecule pollutants”
- Head, Jared (The University of Texas at San Antonio) – “Development of Biomedically Relevant Fluorophores Based on Cyanine 9 Scaffold”
- Hsu, Heather Chia-Chien (Rice University) – “An Injectable Semipermeable Microparticle Reservoir for Programmable Zero-Order Delivery of Hydrophobic Therapeutics”
- Huq, Irene (The University of Texas at Austin) – “Developing Perfluorocarbon Nanoparticles as19F MRI Agents”
- Hussain, Aasim (The University of Texas at Austin) – “Structural Design Rules for Oligonucleotide Polyelectrolyte Complex Micelles”
- Isinkaye, Oluwaferanmi (University of Houston) – “Advancing Nanoscale Electrochemical Interfacial Imaging Through Electrochemical Scanning Tunneling Microscopic Tip-enhanced Raman Spectroscopy”
- Jenkins, Bryn (Texas A&M University) – “TEMPO-Functionalized Non-Conjugated Redox-Active Polymers for Energy Storage”
- Kassen Chandeni and Müllerová, Veronika (Texas A&M University) – “Transformation of Naturally-sourced Polymeric and Molecular Carbohydrates into Functional, Sustainable Synthetic Polymer Materials”
- Kaur, Gurleen (University of Houston) – “Modular Synthesis of non-symmetrical Tris(2-pyridyl) Borates ligands and Metal Coordination”
- Kudlack, Autumn (Texas A&M University) – “Ion Conduction in and Structure of Polyzwitterion/Polyanion Blends”
- Kumarasiri, Buddhini (The University of Texas at San Antonio) – "Fluorogenic NIR Probes for Kinase Profiling and Wash-Free, High-Contrast Intracellular Imaging"
- McCulloch, Hailee (The University of Texas at San Antonio) – “A Chemically Stable and Non-Aggregating Analog of IRDye 800 for Biomedical Imaging”
- Mohammadi, Zerankeshi Meysam (The University of Texas at Austin) – “Storage Buffer Composition Impacts Internal Structure, Freeze-Thaw Stability, and Transfection Efficiency of mRNA-Lipid Nanoparticles”
- Mohanty, Khirabdhi (Texas A&M University) – “Isotacticity and Molecular Weight as Key Determinants of Electrochemical Performance of Poly(N-Vinyl Carbazole)”
- Monterde, Alex (The University of Texas at Austin) – “Regiodivergent Cu-catalyzed Oxidative Carboamination of Conjugated Dienes”
- Moore, Smolen and Gavin, Justin (Texas A&M University) – “From Sediment to Spectrum: Analytical Techniques and Machine Learning for Environmental Microplastic Classification and Identification”
- Moran, Hayden (Texas A&M University) – “A Theory–Driven Framework for Calculating and Interpreting Electronic Absorption Spectra of Polyacetylene–Derived Macromolecules”
- Ngo, Lam (Texas A&M University) – “Development of Organic Redox-Active Polymers Using Self-Doping Approaches”
- Nguyen, Ba Nhu Quynh (University of Houston) – “Cobalt-catalyzed Site-Selective Intramolecular Amidation of Carbon(sp2)–Hydrogen Bonds”
- Nguyen, Nghia (University of Houston) – “Structural Dynamics and Assembly Kinetics of Amyloid-β 42 Oligomers”
- Nonomura, Tatsuki (Texas A&M University) – “ IBT AI-Guided De Novo Design of a Caffeine-Induced Protein Dissociation System”
- Oh, Dong-Kyu (Texas A&M University) – “ Mixed electron and ion transport in BBL derivatives”
- Patrone, Matteo (Rice University) – “Insights into the Structure and Oxidation of L-Ascorbic Acid by Raman Spectroscopy”
- Pranada, Jaybelle (Texas A&M University) – “Modeling Coupled Electron-Ion Transport in Redox-Active Polymers”
- Price, Anna (Texas A&M University) – “Reprogramming chemically induced dimerization systems with genetically encoded nanobodies”
- Rahimi, Kosar (University of Houston) – “Folded and Disordered Domain Contexts Shape the Conformational Landscape of Protein–RNA Recognition”
- Rai, Suman (University of Houston) – “What is “Protein A”? Natural Variation in IgG-binding Proteins”
- Rajurkar, Aishwarya (Baylor College of Medicine) – “Dissecting how Integrator acts in a gene-specific manner beyond snRNAs to regulate transcription and cell growth”
- Ramachandru, Girish Gowda (University of Houston) – “Synthesis of Sandwich-α-Diimine Ligands via Copper-Mediated Stille Coupling”
- Reid Katelyn (Texas A&M University-Corpus Christi) – “Selective Detection of Dichloromethane Contaminants in water and vapor using a Platinum(II) Complex”
- Ruiz De Castilla, Lorenzo (University of Houston) – “Cooperative Catalysis for Enhanced Functional Polyethylene Synthesis”
- Shakil, Md Shaikot Alam (University of Houston) – “Ultrafast Energy Flow in Supported TMDC Heterostructures”
- Shuvo, Md. Shahriar Hossain (University of Houston) – “A Molecular Movie of Energy Flow”
- Simran, FNU (University of Houston) – “Harnessing Cooperative Divanadium Catalyst for Aerobic Lignin Valorization.”
- Stauber, Nathan (Texas A&M University-Corpus Christi) – “Lipidomic Characterization of Omega-3 Fatty Acids in Farm-Raised Eastern Oysters (Crassostrea virginica)”
- Trabulsi, Seth (Rice University) – “DFT-Calculated Raman Tensors for Measuring Molecular Orientation in Organic Crystals”
- Vasquez, Isabella (Texas Tech University) – “Ultrabright NIR-II Nanoprobes for Ex Vivo Bioimaging: Protein Nanoengineering Meets Molecular Engineering
- Wijesinghe, Oshani (University of Houston) – “Tris(2-pyridyl)borates Coordination Chemistry and Bimetallic Main Group Catalysts for the Synthesis of Biodegradable Polymers”
- Wu, Xinyi (The University of Texas at Austin) – “Designing Efficient Perovskite Nanocrystal-ligand Sensitizers for Blue-to-UV Upconversion”
- Xiao, Wei (The University of Texas at Dallas) – “Early Diagnosis of Metabolic Dysfunction-Associated Steatohepatitis (MASH) Through Sinusoidal Remodeling–Dependent Glutathione Efflux”
- Yang, Shuyuan (Baylor College of Medicine) – “VADER1: A Red Fluorescent Biosensor for Deep-tissue Multiplexed Voltage Imaging”
- Yarinia, Ramtin (University of Houston) – “MgAl Layered Double Hydroxides as Templates for Selective Crystallization of Glycine PolymorphsYour lab name”
- Zhou, Wenchang (Rice University) – “Investigating the role of O-GlcNAcylation and its associated cellular heterogeneity within Ewing Sarcoma cell lines”

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POSTER SESSION

POSTDOCTORAL TRAINEES

- Ahrari, Samira (TheUniversity of Texas at Dallas) – "Microvilli-Mediated Transport and Internalization of Extracellularly Assembled Nanoparticles in Kidney Proximal Tubules"
- Chen, Feng (University of Houston) – "Nickel-Catalyzed Copolymerization of Ethylene with Vinyldifluoromethylsilane and Postpolymerization Oxidation: Access to Hydroxy-functionalized Polyethylenes"
- Cui, Mingguang (Texas A&M Institute of Biosciences & Technology)– "Engineering Viral Protease-Operated Nanobodies for Programmable and Orthogonal Control of Protein Function"
- Deacy, Arron (University of Minnesota) – "Contra-Thermodynamic α,β- to β,γ-Photodeconjugation of a CO2-Derived δ-Lactone Enables Both Facil Ring Opening- and Thiol-ene Radical-Polymerizations"
- Dutta, Nivedita (University of Houston) – "A Thermodynamically Informed Base-pair QUBO for RNA Folding including Post-transcriptional Modifications"
- Fields, Christopher J (Baylor College of Medicine) – "Engineering circular RNA expression systems to minimize contaminating linear RNA byproducts"
- Hodges, Mercie (University of Houston) – "Upcycling Polypropylene and Bio-Derived Alcohols into Tunable and Processable Polyurethanes,"
- Kumbalathara, Umesha (Baylor University) – "Stereocomplexation of pH-Responsive L- and D-Peptides for Tunable Hydrogel Materials"
- Land, Michelle (Baylor College of Medicine) – "A Toolkit of Functionally Tuned Green Fluorescent Indicators for Imaging Voltage Dynamics in Vivo"
- Li, Si (University of Houston) – "Tautomer-Mediated Crystallization: The Cases of Theophylline Monohydrate and Hypoxanthine"
- Liu, Chang (The University of Texas at Austin) – "Architecture and Multivalent Assembly of Serum IgM Immune Complexes"
- Llanos, Carlos (Rice University) – "Developing a Single-cell Assay to Quantify Protein Solubility and Condensate Association in Ewing Sarcoma."
- Ma, Rulong (University of Houston) – "Computational dissection of sarco/endoplasmic reticulum Ca^{2+}-ATPase 2b C-terminal extension autoinhibition and its therapeutic potential in Darier's disease"
- McDonald, Alexander (Baylor College of Medicine) – "A Ca^{2+}-selective light-gated ion channel for direct optical control of intracellular calcium and synaptic transmission"
- Mondal, Saptarsi (The University of Texas at Austin) – "Ballistic Coherent Vibrational Energy Transport in a Disordered Polymer Enabled by a Low-Q, Broadband Plasmonic Cavity"
- Pak, Heidi (UT Southwestern Medical Center) – "Circadian Alignment and Feeding Predictability Mediate the Metabolic Efficacy of Calorie Restriction"
- Pal, Suman (University of Houston) – "Chiral Nanoparticle-Mediated Control of Biomolecular Polymorphism"
- Panja, Dibyajyoti (University of Houston) – "Linear High Molecular Weight (Functional) Polyolefins using Monophosphine-Nickel Catalysts"
- Shafie, Arefeh (The University of Texas at Dallas) – "A Novel Renal Oxidative Stress Marker for Very-Early Detection of Cisplatin-Induced Kidney Injury"
- Shafikov, Marsel (Texas A&M University) – "On the Role of Symmetry Breaking Triplet State Confinement in the Phosphorescence of Some Dinucler Pt (II) complexes"
- Swaminathan, Abhinav (Texas A&M University) – "Discovery of a mitochondrial aconitase repair protein"
- Wright, Bradley (Baylor College of Medicine) – "Precision RNA editing using circular guides"
- Yao, Menghui (University of Houston) – "Additive-Mediated Stabilization of Metastable Pyrazinamide Polymorphs"
- Zhang , Jie (The University of Texas at Austin) – "An In Vitro Platform for the Rapid and Scalable Biocatalysis of Complex Polyketides"
- Zheng, Dan (The University of Texas at Dallas) – "LCST- and UCST-like behavior of glycinamide-modified polyrotaxane tailored by Hofmeister series"
- Zhang, Ziyi (The University of Texas at Austin) – "Structural and Optical Property Modulation of Indium Oxide Nanocrystals through Dopant Engineering"

LABORATORY HEADS

- Breton, Ghislain (Baylor College of Medicine) – "A specialized RNase P subunit adapts a core tRNA processing enzyme to generate the non-canonical 3'end of MALAT1"
- Carsch, Kurtis (The University of Texas at Austin) – "Selective Separation, Transport, & Functionalization of Isotopologues"
- Chen, Linxiao (University of North Texas) – "Understanding and Rationally Tackling Polymer-Specific Challenges in Plastic Recycling Catalysis"
- Djire, Abdoulaye (Texas A&M University) – "Lattice-Nitrogen Mediated Ammonia Synthesis"
- Fan, Donglei Emma (The University of Texas at Austin) – "Electrophotographic Nano-Patterning in Solution"
- Gauthier Joesph (Texas Tech University) – "The pH effect in hydrogen evolution is a consequence of creating a solvated hydroxide ion"
- Gladysz, John (Texas A&M University) – "Electron Density Polarization Across Polyyne Chains in Molecular Polygons Enabling Columbic Cation Host Properties"
- Minus, Matthew (Prairie View A&M University) – "Exploring the synthesis, properties, and recyclability of Poly acylhydrazone (PAcHy) polymers"
- Morales, Escalante Jose (The University of Texas at San Antonio) – "ON UNCERTAINTY QUANTIFICATION IN THE PARAMETRIZATION OF NEWMAN-TYPE MODELS OF LITHIUM-ION BATTERIES "
- Shih, Liwen (University of Houston - Clear Lake) – "Quantum Brain Game (Q^BG): Uncover Functional Brain Map with Co-Activation Network Clustering "
- Srivastava, Indrajit (Texas Tech University) – "Macromolecular Engineering of Protein-Polymer Nanoassemblies for NIR-II Bioimaging"
- Ying, Binbin (UT Southwestern Medical Center) – "e-GLUE: electroadhesive hydrogel interface for prolonged GastrointestinaL mUcosal rEtention"
- Yu, Mengxiao (The University of Texas at Dallas) – "Renal-Clearable Gold Nanoparticles Enable Early and Accurate Diagnosis of Kidney Injury"
- Yuan, Yucheng (Texas State University) – "Acid–Base Interactions-Driven Compatibilization of Polyolefin Blends"
- Zhu, Hua (Texas State University) "Organic Materials in Semiconductor Optoelectronics: Perovskite Solar Cells and Emerging opportunities"