

9657-9658 Topics: 2019-2020

Dendritic hydrogels: Materials for the encapsulation and delivery of cells and drugs
Optical, Electronic and Thermochromic Properties of Three Coordinate Borepinium and Borafluorenium Heterocycles
Synthesis of highly luminescent N-heterocyclic carbene stabilized Au cluster
Furan-Based Synthetic Bio-Based Polymers Protect Against UV Radiation
Mass Spectrometry-Based Approaches to Biomarker Discovery
Advances in Low-Cost Detection of Toxic Arsenic in the Environment
The Protein Corona of Nanoparticles
Greener Synthesis of Organic Compounds Using Electrosynthesis Methods
Selective Hydrogenation of Acetylene to ethylene: "Active Site Isolation" Matters
Nickel PR₂NR'₂ Complexes for Catalytic Oxidation of Alcohols
Capture and Characterization of Single Extracellular Vesicles
Hierarchical ZnO microstructure by Hydrothermal Method and Its Photocatalytic activity
Hydrophosphination: A new, controlled route to post polymerisation modification of phosphinoborane polymers
Multi-modal rhenium(I) tricarbonyl aqua complexes as anti-cancer agents
Structure and Properties Tuning of Sodium Rhodizonate by High Pressure
Solid-Vapor Interface Engineered Covalent Organic Framework Membranes for Molecular Separation
Affinity Selection-Mass Spectrometry Screening of Peptide Libraries
Modern Theoretical Perspectives on Electronegativity
Cycloaddition: Access to Complex Scaffolds via Donor-Acceptor Cyclopropanes
Expanding the Definition
Phase-change materials (PCMs) for data storage technologies
Cooperative Dehydrogenative Catalysis in Aniline Synthesis
NH₃ formation from N₂ and H₂ mediated by molecular tri-iron complexes
Developments in Highly Biocompatible Photosensitized Nanomaterials for Photodynamic Therapy
Nanobio-engineered biosensors for COVID-19 diagnosis
Using Bimetallic Complexes as Catalysts for Organic Synthesis

9657-9658 Topics: 2018-2019

1,2,4-triazoline-3,5-dione (TAD)-based click and transclick reactions: The new era of ultrafast and reversible click chemistry for polymer systems
H₂ and CO₂ Activation by an Iminodisilene
Ionization energies from *ab initio* ground-state wave functions
Roles of Transition Metal Surface Dopants in Enhancing the Oxygen Reduction Reaction Performance of Bimetallic Nanoparticles
Modern Methods of Screening for Bioactive Compounds in Complex Mixtures
Peptide nucleic acid: Advanced tools for biomedical applications
Design of hybrid hydrogels from cationic arginine-based poly(ester amide)s
The Importance & Versatility of Cycloaddition Chemistry: A Look at Donor-Acceptor Cyclopropanes & Cyclobutanes
Post-Synthetic Modifications of Indium Phosphide Quantum Dots: Strategies for Enhancing Luminescence and

Tunability

Scavenging oxygen at room temperature using electrochemically reduced TiO₂ nanotubes

Molecular Dynamics Simulation Methods for Studying the Rotational and Catalytic Behavior of the F₁ ATP Synthase

Molecular Copper Chalcogenides: Building Copper (I) Sulfide Molecules Using *N*-Heterocyclic Carbenes

Oxidative Protein Modifications in Aging Characterized by Mass Spectrometry

Recent Advances in the Cycloaddition of 1,4-Dipoles: An Atom Economical Construction of Biologically Relevant Frameworks

The Viability of Aluminum Ion Batteries for Safe Commercial Uses

Getting the Short End of the Stick – The Effects of Truncation on Lipid Bilayers

Anionic redox activity in Li-ion batteries – fundamentals and challenges

Search for Past Life on Mars: Hints from Detection of Reduced Organic Carbon Compounds and Carbonate Minerals in Martian Meteorites

Chemical Space: The Final Frontier – Expanding the chemical diversity of large macrocycle libraries

The application of atomically thin 2D materials in CO₂ electroreduction

CO₂ Reduction with Main Group Reagents

Motion of Light-powered Micro/Nanobots

Frontal Ring-Opening Metathesis Polymerization of Dicyclopentadiene: An Efficient and Versatile Method for the Synthesis of a Thermoset Polymer

Nano-porous Polymer-based Materials for Highly Efficient Passive Daytime Radiative Cooling

Bioinspired Microstructures for Fog Water Harvest

Advances in 2D Semiconductor Materials for Field Effect Transistors

9657-9658 Topics: 2017-2018

Geopolymers as Encapsulants for Cs and Sr Nuclear Waste

Designing molecular beacons for improved nucleic acid bioanalysis

Polynuclear *N*-Heterocyclic Carbene Complexes of Gold

Vibrational Spectroscopy of Exosomes

Glycodendrimersomes, a Novel Cellular Mimic with Displayed Surface Carbohydrates for Binding to Lectins

Low-Coordinate Phosphorus Compounds: Adding Tools to the Synthetic Chemists' Toolbox

Red to near-IR BODIPY fluorophores and their role in dendritic single-molecule fluorescent probes

Saxitoxin in Action: Development of novel biological tools for the investigation of voltage gated sodium channels

X-750 alloy oxide formation in boiling water reactor conditions: exploring the effects of iron content and surface preparation

Reusable Evanescent wave DNA biosensor for rapid detection of Mercury ions in aqueous solution with high sensitivity and selectivity

Hydrogen Bonding in Photoswitchable Molecules

Plasmonic Nanoparticles as Optical Biosensors

The design and synthesis of a ^{18}F -labeled saxitoxin derivative for in vivo PET imaging of voltage-gated sodium channels

Analytical Issues involved in the Legalization of Cannabinoids

Improving the Detection Sensitivity in Paper-based Microfluidics for Point-of-Care Diagnostics

Keep 'em Separated: Methods of deconvoluting NMR spectra of complex mixtures

Polymers in Water Treatment: Applications and Function

Recent Advances in Materials Science: What Does It Mean to Be "Biomimetic"?

The Use of DNA Nano-Architecture Platforms for Stabilization and Delivery of Biologically Active Therapeutics

The Importance of Late Stage Functionalization

Liquid Crystal Elastomers and their Modern Applications

Universal molecular scissor, CRISPR-CAS9, and its chemical modification

Mass Spectrometry - A Weapon in the War on Drugs

Single-Molecule Reactions Simultaneously Initiated and Filmed by Transmission Electron Microscopy

Drug Delivery for Selective Targeting: A Couple Creative Approaches

Electroorganic Synthesis: C–H Functionalization by Electrochemical Methods

Iron Oxide Nanoparticles as an Adsorbent in Water and Wastewater Treatments

Protein Conformations in the Gas Phase Probed by Mass Spectrometry and Molecular Dynamics Simulations

Sustained drug release formulations for joint conditions

Fabrication of Silicon Films Using Electrodeposition Methods

The effect of formyl group on the spectral properties of chlorophylls

9657-9658 Topics: 2016-2017

The X Files: The Application of Nuclear Forensics to Characterize Nuclear Materials of Unknown Origin

Small Flasks for Big Chemistry: Application of Self-Assembled Hosts in Synthesis

A lithium–oxygen battery based on lithium superoxide

Model exchange-correlation potentials

Stimuli Responsive Poly(phthalaldehyde)s and Their Applications in Tunable Core-Shell Microcapsules for Controlled Release

Inverse vulcnization: a new polymeric technique and its uses in Li-S batteries

Cancer Diagnosis and Treatment by Means of Magnetic Nanoparticles

Corrosion and Oxide Formation of Nickel-based Alloys

Solvent-Free Synthesis of MOFs and Zeolites

The viability of current solid materials for direct air capture of CO₂

Artificially expanded genetic information system (AEGIS)

Molecular Assembly of the Nanoporous Metal-Organic Framework ZIF-8 Studied by Atomic Force Microscopy

Solution to the PEG Dilemma: Efficient Bioconjugation of Large Gold Nanoparticles for Biodiagnostic

Applications using Mixed Layers

Ancient DNA – Preserving and Analyzing the Remnants of DNA from Fossilized Organisms
Recent Developments of Atom Probe Tomography and Applications
Stapled Peptides: Applications and new Advances
Exploring the Oxygen Reactivity of a NiCl(π -allyl)N-Heterocyclic Carbene System
Innovative paper::Applications of paper functionalized with hydrochromic dyes
Recent progress on the conversion of syngas to lower olefins
Reversible Cycloadditions of Unsaturated Tin Compounds
Incorporation of BODIPY dyes into block copolymers, and their use in visualizing self-assembly
Use of dissolution dynamic nuclear polarization to increase sensitivity in metabolic magnetic resonance imaging
Applications of Hydrogen/Deuterium Exchange-Mass Spectrometry for Studying Intrinsically Disordered Proteins
Radiation-induced Oxidation of Iron Oxides
The Effect of Long-range Interaction Forces on Surface-Surface Reactions
Deadly secrets of 17th and 18th century paintings: Arsenic sulfide pigment degradation and migration
Thermochromic VO₂-Based Coatings for Smart Windows
Blast Off! Progress of Rocket Propellant and its Impact on Space Exploration

9658Y Topics: 2015-2016

How to recycle waste solvent? Membranes can do it!
Filling the gap: Developing new composite resins for dental materials
Catalytic Hydrogenation of CO₂ to Methanol
Recent Advancements of Silicon Nanowires: Bio--interfaced Electronics
Continuous Liquid Interface Production: Pulling 3D Printed Polymers Forward
Bodybuilding, Powerlifting and Performance Enhancing Drugs
Tracking of LiFePO₄ Phase Transition Mechanism upon Lithiation and Delithiation
Single Molecule Imaging using Atomic Force Microscopy
Coating Methods for Magnesium Alloys
CO oxidation: Transforming A Hazardous Air Pollutant to Non--Toxic CO₂ Recent advances in the development of small molecule based organic solar cells
Application of magnetic compounds to wastewater treatment
Recent progress in molecular level studies of mechanochemical processes
CO₂--Switchable Materials for Green Chemical Processes
Harmful Algal blooms -- Toxicity and the need for Rapid detection of microcystins in drinking water
Recent advances in tandem catalysis
Criegee Intermediates: Elusive molecules that clean up the atmosphere
Prodrugs Targeting the Central Nervous System (CNS): A Challenge in Drug Development
Restoring the past: is chemical cleaning or laser ablation the answer to bringing ancient art back to life
The synthesis, properties and applications of Nanodiamonds
Tackling the burden of obesity and hyperglycemia in type 2 diabetes
Chemistry as a Useful Tool for Understanding the Universe
Atomically thin transition metal dicalcogenides as new semiconductor materials
The Use of anti--MicroRNAs (AMOs) and Nanotechnology for Drug Delivery Systems and Therapy
Spherical nucleic acid: A multifunctional cancer treatment kit
Applications of Quantum Dots as Forster Resonance Energy Transfer Based Biosensors
Anisotropic patchy particles as self assembling building blocks
Valorization of Lignin: Towards the production of valuable chemicals and fuels
Advances in wearable electronics using fiber energy storage systems
Can we make our windows smart using Transition Metal Oxides?
Flow Chemistry: The future of Synthesis
From Chemotherapeutics to Surgical Extraction: The Role of NPs in Treating Brain Tumors
Recent Developments in Chemical Exchange Saturation Transfer (CEST) Agents for Magnetic Resonance Imaging

(MRI) Contrast Enhancement

Carbon Monoxide Reduction: A Trade off between Efficiency and Conditions

Hypervalent Iodine Reagent in Atom Transfer Reactions

Applying Archaeochemistry to Shipwrecks: Exploring History's Underwater Treasure Chests

The Crystalline Sponge Method: A Revolutionary Change in X-ray Crystallography Methods of Detection for Blood Doping in Professional Athletes

Recovering Uranium from Seawater Using Iron Nanoparticles

9658Y Topics: 2014-2015

Examining the Next Generation of Anti-Inflammatory Agents

Membrane Electrode Assembly: the Challenges and Opportunities That Lie Within Advances in CO₂ Capture Technologies Using Amine-Based Solid Sorbents

Recent Developments in Single Particle Cryo-Electron Microscopy for Studying Biomolecular Structures Organocatalyzed Dynamic Kinetic Resolution for Single Enantiomer Synthesis

Cellular Factories: The Next Industrial Revolution

Versatile chemistry of cyclodextrins and their multi-functionalities Graphene-Based Anode Materials for Lithium-Ion Batteries

Spiroindolones and Imidazolopiperazines: Potential New Weapons to Defeat Malaria Threose Nucleic Acid (TNA)

Li-S Batteries: Advanced S-Host Materials

Recent Advances in Organocatalysis

MALDI Mass Spectrometry Imaging: Enabling Spatially-Resolved Biomarker Discovery Antibiotic Resistance: A Growing Concern with a Sweet Solution

Targeting metal ions as a potential therapeutic for Alzheimer's disease

Challenges and opportunities for mixed-matrix membranes for gas separation

Detection of O-linked protein glycosylation –an important link in Alzheimer's disease Broadly Neutralizing Antibodies: Towards the Development of HIV Vaccines

Carbon Dioxide: A "Green" Stimulus for Block Copolymer Self-Assembly and Development of Biomimetic Materials Phasing Out the Fat: Colloids in Food

Medical Applications of Solid-Phase Microextraction (SPME)

Catalytic Conversion of Biomass for the Use as Alternative

Fuels DNA Aptamers for Targeted Cancer Therapy

Development of Aptasensors and Their Use in Bisphenol A (BPA) Detection

Marijuana: A gateway drug ... to better health

Polymer solar cells- a new approach to harness energy directly from the sun Rotaxane Based Mechanically Interlocked Machines: From Design to

Work Actuator Materials in Future Biomedical Applications

9658Y Topics: 2013-2014

Sonochemistry, a versatile tool in chemical operations

Visible-Light Photoredox Catalysis in Organic Transformations

Studying "invisible" excited states of proteins by solution phase

NMR New Synthesis of Frontier Therapeutic Molecules with

Applications Chemistry of High-Temperature

Superconductivity

Photochromic Diarylethenes: Potential Application as Molecular Mechanical Devices

Analyzing the Mechanism, Synthesis and Action of Anti-Obesity drugs and their effects on Adiposity

Chemistry of Cheating: Performance-Enhancing Drugs in Professional Sports

Fragment Based Drug Discovery: How is it changing the drug design process?
Chemical Fingerprinting of Historic Works of Art
Quintuple bonded complexes: Synthesis and reactivity
Chiral *tert* butanesulfinamides: A Versatile Auxillary for
Synthesis Stirred not Shaken: Mixing in Droplet
Microfluidics
Nanocarries as a Method for Drug Delivery of Nitric Oxide
Bioorthogonal Reactions: Bringing Chemistry to Life
Antimicrobial Textiles
Lightweight Biodegradable Implants
The Role of Nanoparticles in Drug Delivery
What's Love Got to Do with It? The Chemistry of Sex Pheromones
Small Melicules Which Rescue the Mutant Cystic Fibrosis Transmembrane Conductance
Regulato Archaeological Chemistry - Using Chemistry to Unveil the Secrets of Antiquity
Recent Developments in Atom Transfer Radical Polymerization
(ATRP) Methods to Discover and Synthesize Macrocylic
Peptides
Bind and Shine: Fluorescence Chemosensors for Fluoride Ions Detection
Chemistry of Disaster: Recent Advance in Detection and Degradation of Chemical Warfare Agents

9658Y Topics: 2012-2013

Systems Chemistry-Self Replication and a Deeper Understanding of the Origins
of Life Molecular Gastronomy: How Chemistry Pushes the Restaurant Industry
Forward Stimulated Emission Depletion Fluorescence Microscopy beyond the
Diffraction Limit
The Development of Materials and Methods for Desalinating Saltwater
Directed Self-organization of Inorganic Nanoparticles: Challenge from Science to
Engineering Mechanized Silica Nanoparticles: The "Magic bullet" in Theranostic
Nanomedicine Photodynamic Therapy; Mechanistic Studies and Photosensitizer
Targeting
Tinplate Cans for Food Preservation: Corrosion Detection and Natural Corrosion
Inhibitor Chemical Chaperones as Alternative Therapeutic Agents
Implantable Biofuel Cells
H₂ Production under Visible Light: Clean Energy Generation Water
Transition Metal Catalyzed Fluorinations: Increasing the Substrate Scope for 18-F
Labeling Defect-related Luminescent Mateerials and their Application in
Biomedical Fields Biomedical Application of Synthetic Hydrogels: Challenges and
Future Perspectives Molecular Machine: Mechanically Interlocked Molecules
DNA Origami: The Art and Science of Nucleic Acid
Nanostructures Organic Light-Emitting Diodes: The Light of the
Future
Light Struck Beer
Development of Synthetic Metalloenzymes Towards Industrial
Applications Layered Double Hydroxides (LDHs) Nanosheets and
their Applications Metal-organic Frameworks for Hydrogen
Storage

9658Y Topics: 2011-2012

Artificial and Non-Nutritive Sweeteners (NNS): What's in your coffee?
The Photochemical Reduction of Carbon Dioxide: Application for Energy
Storage Catalytic Antibodies: At the Interface of Chemistry and Biology
The Role of Nanomaterials in Increasing Energy Efficiency of Li-air
Batteries Repairing Internal Damage - The Chemistry of Self-
Healing Materials Molecular Flasks: Self-Assembled Transition-
Metal Supramolecular Hosts

C-H Bond Activation, Towards Unactivated Cross-Coupling

Reactivity Molybdenum and Iron Complexes for Dinitrogen

Reduction to Ammonia Core-Shell Nanoparticles: Fabrication and

Application for Chemical Catalysis Synthesis, Dynamics and

Applications of Catalytic Motors

Photoswitching with azobenzene compounds for application: Can you see the

light? Unravelling the Chemistry behind Two Forms of Non-B DNA: Theory and

Application

The Green Solvent, Supercritical Carbon Dioxide and its Application in Liposome

Preparation An old dog teaching us new tricks: microRNAs - from detection to

potential drug applications Total Syntheses: Stemona Alkaloids

Aptamers: Principles and Applications in Molecular

Recognition Using Nanobiosensors for Food and Water

Safety

Organophosphate Nerve Agents: Chemical Methodologies to Decontaminate or Destroy This Chemical

Warfare Agent Mending Bones: Synthesis and Applications of Bioceramics and Nanofibers

Shedding Light on Photoprotection: Advances in Sunscreen UV-Filters Storing Energy between Layers:

Fabrication and Applications of Graphene Family Nanomaterials There is a lot to a wee dram of whisky; a comprehensive analysis of current analytical techniques used to confirm quality and authenticity

Toward Flexible Memories: Organic Materials for High Density Data Storage

Photoluminescent Framework for the Identification of Gunshot Residue Dye

Sensitized Solar Cells: The Bright Future of Photovoltaics

Bacterial Magnetosomes and Their Applications