

The University of Alabama
2010 Application for
Research Participation Program in Chemistry for Teachers
May 30 – August 7, 2010

Mr.
1. Full name: Ms. _____ SS# _____ Date: _____

Preferred name: _____ E-mail Address: _____

2. Address: (present) _____

(School): _____

Home phone number: _____ Cellular Phone: _____

School phone number where you can be reached: _____

3. College(s) and University(ies) attended, with dates: _____

Science courses taken in college _____

4. Chemistry Course Taught (last three years): _____

5. Earliest date you could begin summer program: _____
(Please give the date your school begin and end)

6. Names, titles and addresses of two persons whom you have asked to write letters of recommendation. Include at least one person who can comment on your laboratory skills.

These letters should be sent to: Dr. John B. Vincent, Dept. of Chemistry, Box 870336
The University of Alabama, Tuscaloosa, AL 35487-0336

7. **Enclose with this application a short, one-page letter in which you summarize your goals to incorporate research experience learn into your teaching chemistry in high school. Indicate how you think that participation in this program will assist you in attaining these goals.**

8. Indicate your top four (or more) choices of research projects or areas in order of preference:

_____ First Choice _____ Second Choice _____ Third Choice
_____ Fourth Choice _____ Other Choice

- 1 A Football Field in a Teaspoon: Making Really High Surface Area Electrodes
- 2 Advanced Composite Fibers and Materials from Ionic Liquid Solutions
- 3 Asymmetric Reaction Methodology
- 4 Atomic Force Microscopy of DNA - Doing Chemistry on Single DNA Strands
- 5 Biochemistry of Chromium
- 6 Bioorganic Reaction Mechanisms of Enzymes
- 7 Biophysical Studies of Protein Dynamics
- 8 Biorefineries: Recovery of Chemicals from Biomass using Ionic Liquids
- 9 Components for Assembly of Molecular Electronics
- 10 Computational Geochemistry for Carbon Sequestration
- 11 Computational Approaches to Advanced Energy Systems - Actinide Chemistry
- 12 Computational Main Group Chemistry
- 13 Computational Nanoscience - Structures of Doped Metal Oxides
- 14 Computational Studies of Catalytic Reactions
- 15 Crystal Engineering: Applications of X-Ray Diffraction Techniques
- 16 Development of Novel Catalytic Reaction Methodology
- 17 DNA-binding Molecules
- 18 Ethics in Chemistry
- 19 Fluorescence Techniques to Study Protein-Protein Interactions
- 20 Gas-phase Structures of Peptide Ions
- 21 Green Chemistry: Fundamentals to Applications
Growing Organic Crystals and Determining Their Crystal Structure - Exploring
New Ways to
- 22 Control Molecular Packing
- 23 Heavy Metal Inhibition of DNA Repair Proteins
- 24 How to Dramatically Improve the Graetzel Solar Cell
- 25 Hydrogen Storage Opportunities with Novel Valence Structures
- 26 Industrial Fluorine Chemistry
- 27 Inorganic Complexes as Models for Solar Energy Conversion
- 28 Inorganic-Organic Composite Solar Cells
- 29 Ionic Liquids as New Pharmaceuticals
- 30 Light Pushing Electrons in Molecules
- 31 Mass Spectrometry Studies of Peptides
- 32 Mass spectrometry-based structural studies on estrogen receptor
- 33 Medium Ring Carbocycles and Cytotoxic Xenia Diterpenoids
- 34 Membranes for Polymer Electrolyte Membrane Fuel Cells
- 35 Metallotherapeutics

- 36 Metals and Free Radicals in Proteins
- 37 Monolayers of Organic Unimolecular Rectifiers
- 38 Nanoparticle Synthesis for Solar Cell Applications
- 39 Nanoparticles for Fuel Cell Electrocatalysis
- 40 Nanoparticles from Complexed Precursors
- 41 Nanostructured Metal Oxide/Metal Electrodes for Chemical Separations
- 42 Nanostructured Metal Oxide/Metal Electrodes for Solar Energy Conversion
- 43 New Catalysts for Environmentally Benign Synthesis
- 44 New Directions in Fluorous Media: Separation and Catalysis
- 45 New Dyes for Non-Linear Optical Applications – Advanced Materials
- 46 New Energetic Materials Based on the Pentafluorosulfanyl (SF₅) Group
- 47 New Reagents for Organic Synthesis
- 48 Novel Antiinflammatory and Anticancer Agents
- 49 Novel applications of graphene in electrochemistry
- 50 Novel Energetic Materials for next Generation Propulsion
- 51 Organofluorine Chemistry
- 52 Organometallic Catalysts in Organic Synthesis
Photocatalysis using Nanoparticles for Solar Energy Conversion and Pollutant
- 53 Degradation
- 54 Polymer Micelles for a Magnetically Triggered, Targeted Drug Delivery System
- 55 Polymer Waveguides for Explosives Detection
- 56 Raman Analysis of Fingerprints
- 57 Self-assembled FePt Nanoparticles for High Density Magnetic Recording
- 58 Solar Cell Interfaces
- 59 Spectroelectrochemistry of single molecule interfacial charge transfer in organic solar cell
- 60 Spin-dependent Electron Tunneling through Organized Monolayers
- 61 Stable Phosphorus-derived Biradicals and their Chemistry
- 62 Synthesis of Agents for the Treatment of Diabetes
- 63 Synthesis of Asymmetrically Substituted Single-Walled Carbon Nanotubes
- 64 Synthesis of Inorganic Materials Using Biological Templates
- 65 Synthesis of Modified DNAs and RNAs.
- 66 Synthesis of New Semiconducting Materials
- 67 Synthesis of Organic Electron Transport Relays to Improve Efficiency of Solar Cells
- 68 Synthesis of Recyclable Fuels for Solar Energy Capture
- 69 Synthesis of Unusual Valence Structures
- 70 The Future of Unimolecular Electronics
- 71 Thin Film Synthesis of Novel Oxide Materials Using Pulsed Laser Deposition
- 72 Total Synthesis of Natural Products
- 73 Well-defined plasmonic antenna for single molecule/particle spectroelectrochemistry