

April 10, 2009

MEMORANDUM

TO: Undergraduate Chemistry/Biochemistry Majors

FROM: Cortlandt G. Pierpont, Chairman
Undergraduate Scholastic and Honors Committee

SUBJECT: Chem 4901 (Independent Study) - Fall 2009/Spring 2010

Faculty listed in this memorandum are interested in having undergraduates undertake independent research in their groups for the Fall 2009/Spring 2010 academic year. A brief description of their research is included, but a more elaborate description of the research activities for each can be seen on the departmental Web page:

<http://www.colorado.edu/chem/>

Click on “Graduate Study”, then “The Faculty.” Clicking on the name of a faculty member will give you an extended summary of that individual’s research interests. Please note that the appearance of the name of a faculty member on the list below is no guarantee that he/she has a space available for you at a particular time. Conversely, faculty members who are not listed occasionally accept undergraduates in their research groups. In general, faculty members are usually willing to discuss the nature of their research with interested individuals.

I will be happy to discuss general issues regarding undergraduate research with you, but normally I can not help you find a place in a research group. It is your responsibility to talk with one or more faculty members and find a lab and a project which interests you.

Robert Batey Cristol Chem 436, (303)735-2159 Email: robert.batey@colorado.edu	structural and biochemical studies of mRNA’s; X-ray crystallographic determination of the atomic structure of proteins and RNA; development of new RNA-based methodologies; design and evolution of RNA biosensors
Niels Damrauer Ekeley W133, (303)735-1280 Email: niels.damrauer@colorado.edu	physical chemistry and physical inorganic chemistry; active control of excited-state reactivity using laser-induced coherent control schemes and synthetic manipulations of structure
Joseph J. Falke Cristol Chem 300A, (303)492-3503 Email: joseph.falke@colorado.edu	biochemical and biophysical studies of sensory receptors and signaling proteins; protein engineering; protein chemistry; spectroscopy
Steven M. George Ekeley W145B, (303)492-3398 Email: steven.george@colorado.edu	surface chemistry; thin film growth; nanostructure engineering; semiconductor processing; atomic layer deposition; nanocomposite materials; thin film properties
Jim Goodrich Cristol Chem 256, (303)492-3273 Email: james.goodrich@colorado.edu	gene expression; mammalian transcriptional regulation; macromolecular interactions

(over)

James T. Hynes Ekeley S152B, (303)492-6926 Email: <u>james.hynes@colorado.edu</u>	theory of reactions in solution and enzymes and at surfaces of environmental importance; energy transfer in solution
Jose Jimenez Ekeley M329, (303)492-3557 Email: <u>jose.jimenez@colorado.edu</u>	instrument development; time-of-flight mass spectrometry; atmospheric aerosols; atmospheric chemistry
David Jonas Ekeley W145D, (303)492-3818 Email: <u>david.jonas@colorado.edu</u>	reaction dynamics in condensed phases; femtosecond spectroscopy
Rob Knight Porter B047C, (303)492-1984 Email: <u>rob@spot.colorado.edu</u>	bioinformatics, genomics, and molecular evolution; human microbiome project; microbial community comparisons; horizontal gene transfer; effects of sequence composition on RNA structure and function
Robert D. Kuchta Cristol Chem 257, (303)492-7027 Email: <u>robert.kuchta@colorado.edu</u>	inhibition of DNA replication; mechanisms of proteins involved in replication; synthesis of novel nucleotide analogs
Jennifer Kugel Cristol Chem 254, (303)492-3596 Email: <u>jennifer.kugel@colorado.edu</u>	mechanisms of transcriptional regulation in mammalian systems
Xuedong Liu Cristol Chem 359, (303)735-6161 Email: <u>liux@colorado.edu</u>	TGF-beta signaling transduction mechanism and retroviral mediated expression cloning
Charles McHenry Cristol Chem 232C, (303)735-0071 Email: <u>charles.mchenry@colorado.edu</u>	DNA replication, protein purification, protein-protein interaction and communication circuits, chemical biology, discovery of small molecules that perturb biological processes and may serve as novel drug leads
Josef Michl Cristol Chem 127, (303)492-6519 Email: <u>michl@eefus.colorado.edu</u>	synthesis and spectroscopy of organic and inorganic molecules for molecular electronics and nanostructures
David J. Nesbitt JILA A805, (303)492-8857 Email: <u>david.nesbitt@colorado.edu</u>	lasers; supersonic beams; atmospheric chemistry; clusters; radicals, single molecule microscopy; near field scanning optical microscopy; molecular biophysics
Amy Palmer Cristol Chem 354, (303)492-1945 Email: <u>amy.palmer@colorado.edu</u>	protein design and evolution to create fluorescent biosensors; biophysical characterization of biosensors; use of sensors for live cell imaging of signal transduction; investigation into cellular mechanism of disease
Arthur Pardi Cristol Chem 258, (303)492-6263 Email: <u>arthur.pardi@colorado.edu</u>	biophysical chemistry; structure of proteins and nucleic acids; multi-dimensional nuclear magnetic resonance spectroscopy; single molecule fluorescence spectroscopy
Robert P. Parson JILA A609, (303)492-7751 Email: <u>robert.parson@colorado.edu</u>	theory of energy transfer in molecular collisions; theoretical dynamics of molecular clusters
Andy Phillips Cristol Chem 150, (303)735-2049 Email: <u>andrew.phillips@colorado.edu</u>	asymmetric synthesis; total synthesis of natural products; new methods and strategies for organic synthesis
Cortlandt G. Pierpont Ekeley M319, (303)492-8420 Email: <u>pierpont@colorado.edu</u>	structural studies on transition metal complexes using X-ray crystallography

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asymmetric catalysis; organometallic reagents in organic synthesis; total synthesis of natural product

formation of aerosols for pharmaceutical pulmonary delivery; needle-free vaccine delivery; microparticles and nanoparticles

theoretical chemistry; dynamics of chemical reactions; models for chemical kinetics; reactions; growth kinetics of thin films; applications of chaos theory to chemistry

biochemical and structural characterization of protein complexes regulated by conformational changes; proteins involved in memory/learning and in vision; bacterial proteins that confer antibiotic resistance; X-ray crystallography; biophysical methods to understand conformational changes

mechanistic analysis of transcriptional regulation in humans. We study proteins directly linked to diabetes, cancer, heart disease, and human development.

atmospheric chemistry; cloud microphysics; planetary atmospheres

physical chemistry of atmospheric systems; photo dissociation; spectroscopy; atmospheric chemistry; chemistry at interfaces

instrument development; multi-axes differential optical absorption spectroscopy (MAX-DOAS); imaging DOAS; spectroscopy of atmospheric trace gases; air quality

liquid crystals; self-assembled monolayers; polymers

lasers, optical parametric oscillators, mass spectrometry, clusters, physical organic chemistry, metal organic chemistry, ion solvation, spectroscopy of biomolecules, nanoparticles

structural and biochemical studies of telomere proteins; single-stranded DNA recognition; structural biology (X-ray and NMR)

chemical biology; structure-based drug design and medicinal chemistry; membrane protein engineering; computational biomolecule simulation; biotechnology development

organic materials chemistry; conjugated polymers; artificial photosynthetic system; carbon nanotube composites; porous materials