

September 2019

DEPARTMENT OF CHEMISTRY

MEMORANDUM

TO: Undergraduate Students in Chemistry and Biochemistry

FROM: Anne McWilliams
Director of Undergraduate Academic Affairs

SUBJECT: Chem 4901 (Independent Study) - Fall 2019/Spring 2020

Faculty listed in this memorandum are interested in having undergraduates undertake independent research in their groups for the fall 2019/spring 2020 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:

<https://www.colorado.edu/chemistry>

Go to the "People" tab, then click on "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 included on this list occasionally accept undergraduates in their research groups. In general, faculty members are usually willing to discuss the nature of their research with interested individuals.

Eleanor Browne CIRES 141, 303-735-7685 Email: eleanor.browne@colorado.edu	atmospheric chemistry, nitrogen chemistry, aerosol chemistry, instrument development	<u>Desired Qualifications:</u> minimum commitment of two semesters, 10-12 hrs/week. 3.2 or higher GPA. <u>Interested students should submit:</u> vita, unofficial transcript, statement of why you are interested in the group. <u>Additional information:</u> requires an interview, prefers students in their sophomore or junior year.
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	
Gordana Dukovic Ekeley M331, (303)735-5297 Email: gordana.dukovic@colorado.edu	nanoscale materials for solar energy harvesting; synthesis of inorganic nanomaterials; time-resolved spectroscopy	<u>Desired Qualifications:</u> 3.5 or higher GPA. <u>Interested students should submit:</u> vita, unofficial transcript, names of instructors for recent chemistry courses.
Steven M. George Ekeley W145B, (303)492-3398 Email: steven.george@colorado.edu	surface chemistry; thin film growth; nanostructure engineering; atomic layer deposition; semiconductor processing; nanocomposite materials; electrochemical energy storage; thin film properties	<u>Desired Qualifications:</u> 3.2 or higher GPA; minimum time commitment of 9-10 hours per week; prefer year-long commitment; prefer students interested in pursuing an honors thesis. <u>Interested students should submit:</u> vita; unofficial transcript.

<p>Douglas L. Gin Cristol 160, (303) 735-1107 Email: douglas.gin@colorado.edu</p>	<p>nanostructured organic materials; liquid crystals; ionic liquids; functional polymers; membranes, heterogeneous catalysts</p>	<p><u>Desired Qualifications:</u> 3.4 or higher overall GPA; completion of Organic Chemistry 1 lecture and lab with a grade of B or higher <u>Interested students should submit:</u> vita; unofficial transcript.</p>
<p>David Jonas Ekeley W145D, (303)492-3818 Email: david.jonas@colorado.edu</p>	<p>reaction dynamics in condensed phases; femtosecond spectroscopy; materials for light harvesting; two-dimensional spectroscopy</p>	<p><u>Desired Qualifications:</u> general chemistry plus all math and physics required for the chemistry major, physical chemistry preferred; minimum time commitment of 6 hours per week for two semesters. <u>Interested students should submit:</u> brief statement of reason interested in joining the group.</p>
<p>Oana Luca Cristol 154, (303)732-6721 Email: oana.luca@colorado.edu</p>	<p>inorganic chemistry; physical organic chemistry; green chemistry; organometallic synthesis</p>	<p><u>Desired Qualifications:</u> minimum volunteer commitment of two semesters, with 10-12 hrs/week. GPA 3.2 or higher. <u>Interested students should submit:</u> vita, unofficial transcript, statement of why you are interested in the group. <u>Additional Information:</u> position does not require prior experience. Requires an interview, prefers students in their sophomore year.</p>
<p>Michael Marshak Cristol 153, (303)492-0221 Email: michael.marshak@colorado.edu</p>	<p>inorganic synthesis, Organic synthesis, Nanoparticle synthesis Transition metal catalysis for organic reactions. Electrochemistry, batteries, fuel cells, CO2 storage</p>	<p><u>Desired Qualifications:</u> no experience required, though must be at least enrolled in an intro chemistry course. Need to commit at least three semesters at 12 hours/week and one summer (full time, paid). <u>Interested Students should submit:</u> vita, unofficial transcript, and make an appointment to discuss this possibility further in person. <u>Additional Information:</u> prefer students in Freshman/Sophomore year interested in pursuing an honors thesis.</p>
<p>David J. Nesbitt JILA A805, (303)492-8857 Email: david.nesbitt@colorado.edu</p>	<p>RNA/DNA folding kinetics, single molecule biophysics; laser spectroscopy, interstellar/atmospheric chemistry; solar energy, plasmonics, quantum dots; chemistry at gas-liquid interfaces</p>	<p><u>Desired Qualifications:</u> minimum GPA 3.2, participation in the Undergraduate Honors Thesis program, 10-12 hrs/week minimum. <u>Interested students should submit:</u> vita; unofficial transcript. <u>Additional Information:</u> I encourage students to start in sophomore year if at all possible; interview required.</p>
<p>Robert P. Parson JILA A609, (303)492-7751 Email: robert.parson@colorado.edu</p>	<p>theory of energy transfer in molecular collisions; theoretical dynamics of molecular clusters</p>	
<p>Robert E. Sievers Ekeley W281, (303)492-7943 Email: bob.sievers@colorado.edu</p>	<p>formation of aerosols for pharmaceutical pulmonary delivery; needle-free vaccine delivery; microparticles and nanoparticles</p>	

Rex T. Skodje Ekeley W145C, (303)492-8194 Email: rex.skodje@colorado.edu	theoretical chemistry; dynamics of chemical reactions; models for chemical kinetics; surface reactions; growth kinetics of thin films; applications of chaos theory to chemistry	
Margaret Tolbert CIRES 166, (303)492-3179 Email: tolbert@colorado.edu	atmospheric chemistry; cloud microphysics; planetary atmospheres	
Rainer Volkamer Ekeley M325, (303)492-1843 Email: rainer.volkamer@colorado.edu	instrument development; multi-axes differential optical absorption spectroscopy (MAX-DOAS); imaging DOAS; spectroscopy of atmospheric trace gases; air quality	<u>Desired Qualifications:</u> minimum commitment of two semesters plus a summer; prefer students interested in pursuing an honors thesis. <u>Interested students should submit:</u> vita; brief statement of reason you are interested in joining the group.
David M. Walba Cristol 158, (303)492-6750 Email: walba@colorado.edu	liquid crystals	<u>Desired Qualifications:</u> organic chemistry 1 and 2, lecture and lab; minimum of 2 credit hours per semester for four semesters. <u>Interested students should submit:</u> unofficial transcript. <u>Additional Information:</u> requires interview.
Xiang Wang Cristol 200C, (303)492-6266 Email: xiang.wang@colorado.edu	chemical epigenetics; diversity-oriented synthesis; chemical proteomics; asymmetric catalysis; total synthesis of natural product; antibiotics	<u>Desired Qualifications:</u> 3.0 or higher GPA; organic chemistry 1 and 2, lecture and lab; minimum of 2 credit hours per semester. <u>Interested students should submit:</u> vita; unofficial transcript; TA name(s) for organic chemistry lab.
J. Mathias Weber JILA A709, (303)492-7841 Email: weberjm@jila.colorado.edu	lasers, Raman microscopy, microfluidic devices, nanoparticles, materials under high pressure	<u>Desired Qualifications:</u> 3.3 or higher GPA; minimum of 3 credit hours per semester for two semesters; prefer students interested in pursuing an honors thesis. <u>Interested students should submit:</u> vita; unofficial transcript.
Wei Zhang Ekeley M343, (303)492-0652 Email: wei.zhang@colorado.edu	organic materials chemistry; supramolecular chemistry; polymer chemistry; porous materials; carbon capture; self-healing materials; biomaterials; nanocomposites	<u>Desired Qualifications:</u> organic chemistry 1 and 2, lecture and lab; minimum time commitment of 8 hours per week. <u>Interested students should submit:</u> unofficial transcript.
Paul Ziemann Cristol 434, (303)492-9654 Email: paul.ziemann@colorado.edu	atmospheric chemistry, organic aerosols, characterization of aerosol chemical and physical properties	