

August 2022

## 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 2022

Faculty listed in this memorandum are interested in having undergraduates undertake independent research in their groups for the fall 2022 semester. 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.

Jordy Bouwman Email: <a href="mailto:jordy.bouwman@colorado.edu">jordy.bouwman@colorado.edu</a>	cosmochemistry; interstellar chemistry; physical chemistry; computational chemistry; (laser)spectroscopy	<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
Gordana Dukovic Ekeley M331, (303)735-5297 Email: <a href="mailto:gordana.dukovic@colorado.edu">gordana.dukovic@colorado.edu</a>	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: <a href="mailto:steven.george@colorado.edu">steven.george@colorado.edu</a>	surface chemistry; thin film growth & etching; nanostructure engineering; atomic layer deposition; atomic layer etching; semiconductor processing; nanocomposite materials; 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 Gin Cristol Chemistry 160, (303)735-1107 Email: <a href="mailto:douglas.gin@colorado.edu">douglas.gin@colorado.edu</a></p>	<p>organic materials chemistry; liquid crystals; ionic liquids; polymer chemistry; nanostructured materials; membranes; heterogeneous catalysis</p>	<p><u>Desired Qualifications:</u> Completion of organic chemistry 1 &amp; 2 lecture &amp; lab, minimum commitment of 10 h/week, 3.2 or higher GPA.</p> <p><u>Interested students should submit:</u> vita, unofficial transcript, brief statement of why you are interested in the group.</p> <p><u>Additional information:</u> position does not require prior research experience, but requires an interview.</p>
<p>Ralph Jimenez Email: <a href="mailto:rjimenez@jila.colorado.edu">rjimenez@jila.colorado.edu</a> Website: <a href="https://jila.colorado.edu/jimenez">https://jila.colorado.edu/jimenez</a></p>	<p>Experimental physical chemistry; photophysics of fluorescent proteins, quantum science, molecular imaging. Please see website for more information.</p>	<p><u>Desired Qualifications:</u> Students who feel comfortable with a quantitative approach to science (e.g. detailed data analysis, programming simulations), 3.5 or higher GPA, minimum time commitment of approximately 10 hours/week for at least two semesters, prefer students in a sophomore year intending to pursue an honors thesis.</p> <p><u>Interested students should submit:</u> a statement explaining interest in joining the group.</p>
<p>David Jonas Ekeley W145D, (303)492-3818 Email: <a href="mailto:david.jonas@colorado.edu">david.jonas@colorado.edu</a></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.</p> <p><u>Interested students should submit:</u> brief statement of reason interested in joining the group.</p>
<p>Oana Luca Cristol Chemistry 154, (303)732-6721 Email: <a href="mailto:oana.luca@colorado.edu">oana.luca@colorado.edu</a></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.</p> <p><u>Interested students should submit:</u> vita, unofficial transcript, statement of why you are interested in the group.</p> <p><u>Additional Information:</u> position does not require prior experience. Requires an interview, prefers students in their sophomore year.</p>
<p>Josef Michl Email Only: <a href="mailto:josef.michl@colorado.edu">josef.michl@colorado.edu</a></p>	<p>Preparation, spectroscopy, catalytical reactivity, and other properties of new heterocyclic two-dimensional polymers, metalloporphenes</p>	<p><u>Desired Qualifications:</u> minimum 10 hrs per week in lab.</p>

<p>Michael Marshak Cristol Chemistry 153, (303)492-0221 Email: <a href="mailto:michael.marshak@colorado.edu">michael.marshak@colorado.edu</a></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).</p> <p><u>Interested Students should submit:</u> vita, unofficial transcript, and make an appointment to discuss this possibility further in person.</p> <p><u>Additional Information:</u> prefer students in Freshman/Sophomore year interested in pursuing an honors thesis.</p>
<p>Andrés Montoya-Castillo Ekeley M323, (303) 492-5741 Email: <a href="mailto:andres.montoyacastillo@colorado.edu">andres.montoyacastillo@colorado.edu</a></p>	<p>theoretical chemistry; quantum dynamics of light-induced excitations and charge (electron &amp; proton) transfer; quantum information; decoherence in near term quantum computers; multidimensional spectroscopy in the condensed phase; electrochemical and photo-induced catalysis for renewable energy.</p>	<p><u>Desired Qualifications:</u> physical chemistry (or quantum in physics); calculus 1 &amp; 2; linear algebra; programming experience preferred; minimum time commitment of 8 hours per week for 2 semesters.</p> <p><u>Interested students should submit:</u> brief statement of reason for interest in joining the group; unofficial transcript; names of instructors for recent chemistry courses.</p>
<p>David J. Nesbitt JILA A805, (303)492-8857 Email: <a href="mailto:david.nesbitt@colorado.edu">david.nesbitt@colorado.edu</a></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.</p> <p><u>Interested students should submit:</u> vita; unofficial transcript.</p> <p><u>Additional Information:</u> I encourage students to start in sophomore year if at all possible; interview required.</p>
<p>Jihye Park Ekeley M335, (303)735-5293 Email: <a href="mailto:jihye.park@colorado.edu">jihye.park@colorado.edu</a></p>	<p>materials chemistry; organic chemistry; inorganic chemistry; porous materials; nanomaterials; environmental research</p>	<p><u>Desired Qualifications:</u> minimum volunteer commitment of two semesters with 8 hrs/week or more. GPA 3.4 or higher.</p> <p><u>Interested students should submit:</u> vita, unofficial transcript, brief statement of your interest in the group.</p> <p><u>Additional Information:</u> No prior experience is required. Interview is required. Preference will go to students in Sophomore year interested in pursuing an honors thesis.</p>
<p>Robert E. Sievers Ekeley W281, (303)492-7943 Email: <a href="mailto:bob.sievers@colorado.edu">bob.sievers@colorado.edu</a></p>	<p>formation of aerosols for pharmaceutical pulmonary delivery; needle-free vaccine delivery; microparticles and nanoparticles; hemp extraction and hemp terpene and cannabinoid chemistry</p>	

<p>Rex T. Skodje Ekeley W145C, (303)492-8194 Email: <a href="mailto:rex.skodje@colorado.edu">rex.skodje@colorado.edu</a></p>	<p>theoretical chemistry; dynamics of chemical reactions; models for chemical kinetics; surface reactions; growth kinetics of thin films; applications of chaos theory to chemistry</p>	
<p>David M. Walba Cristol Chemistry 158, (303)492-6750 Email: <a href="mailto:walba@colorado.edu">walba@colorado.edu</a></p>	<p>liquid crystals</p>	<p><u>Desired Qualifications:</u> organic chemistry 1 and 2, lecture and lab; minimum of 2 credit hours per semester for four semesters.</p> <p><u>Interested students should submit:</u> unofficial transcript.</p> <p><u>Additional Information:</u> requires interview.</p>
<p>J. Mathias Weber JILA A709, (303)492-7841 Email: <a href="mailto:weberjm@jila.colorado.edu">weberjm@jila.colorado.edu</a></p>	<p>lasers, Raman microscopy, nanoparticles, materials under high pressure</p>	<p><u>Desired Qualifications:</u> 3.3 or higher GPA; intends to do research work for a minimum of 3 credit hours per semester for two semesters; students interested in pursuing an honors thesis are preferred.</p> <p><u>Interested students should submit:</u> vita; unofficial transcript.</p>
<p>Maciej Walczak Cristol Chemistry 156, (303)492-7670 Email: <a href="mailto:maciej.walczak@colorado.edu">maciej.walczak@colorado.edu</a></p>	<p>organic chemistry; synthesis; catalysis; chemical biology; drug discovery; natural products; chemistry/chemical biology of peptides, proteins, and carbohydrates</p>	<p><u>Desired Qualifications:</u> GPA 3.5 or higher; minimum commitment of two semesters plus a summer; prefer students interested in pursuing an honors thesis.</p> <p><u>Interested students should submit:</u> vita; unofficial transcripts.</p>
<p>Wei Zhang Ekeley M343, (303)492-0652 Email: <a href="mailto:wei.zhang@colorado.edu">wei.zhang@colorado.edu</a></p>	<p>organic materials chemistry; supramolecular chemistry; polymer chemistry; porous materials; carbon capture; self-healing materials; biomaterials; nanocomposites</p>	<p><u>Desired Qualifications:</u> organic chemistry 1 and 2, lecture and lab; minimum time commitment of 8 hours per week.</p> <p><u>Interested students should submit:</u> unofficial transcript.</p>