UCLA Samueli School of Engineering

Funded Ph.D. Position in Direct Air Capture

The Renewable Energy and Chemical Technologies (REACT) Lab at UCLA's Civil and Environmental Engineering Department is seeking two Ph.D. students to join in either Spring 2024 or Fall 2024.

Project Descriptions

Direct Air Capture Project: Capturing carbon dioxide directly from the air plays a crucial role in our efforts to reach 'net zero' carbon dioxide emissions, aimed at addressing unabatable emissions. However, current direct air capture technologies are costly. To bring down the cost of direct air capture, in our lab, we are working on innovative direct air capture processes from conceptualization to prototype testing. As a Ph.D. student, you will engage with cutting-edge direct air capture technologies, involving process optimization, economic analyses, and prototype design and testing. The successful candidate must be comfortable in conducting experiments and designing experimental methodologies, and collecting and analyzing data.

Qualifications

Preferred candidates possess a majority of the listed qualifications. It is not expected that a candidate possesses all the listed qualifications; rather, this list serves as a guide for applicants to prepare their application materials and emphasize relevant skills.

Required Qualifications

- Passionate about scientific research, sustainability, and environmental challenges.
- Degree in Chemical Engineering, Mechanical Engineering, Energy Engineering, Environmental Engineering or related field.
- Strong foundation in thermodynamics, heat transfer, and mass transfer.
- Prior research experience.
- Excellent spoken and written English skills, good communicator, fostering teamwork.
- Ability to quickly learn new equipment operating procedures and/or software.
- Excellent problem-solving skills and capacity to work independently.

Preferred Qualifications

- Fundamental knowledge/experience in experimental laboratory work, gained through course work or prior research.
- Previous research experience in numerical simulations/modeling/coding and/or experiments
- Experience with process simulation software such as ASPEN Plus, ProSim, etc.
- A fundamental understanding of electrochemical principles is a plus.
- A fundamental understanding of techno-economic and/or life-cycle analyses is a plus.

How to apply

It is encouraged to send your two-page cover letter and CV (not resume) to Prof. Fabian Rosner (fabianrosner@ucla.edu), before applying formally via the UCLA Ph.D. application portal. Please use the subject line "PhD Position UCLA" and note that for admission all UCLA Ph.D. admission requirements need to be met (please check on the UCLA website regarding test requirements).

For question, please contact Prof. Fabian Rosner
FabianRosner@ucla.edu

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About UCLA

UCLA is a world renowned R1 research university located in Los Angeles, California, USA. The Engineering Department consistently ranks among the top. UCLA was ranked 16th in Engineering & Technology globally in 2023 by Times Higher Education.

About the PI

Prof. Rosner's research focuses on innovative research in renewable energy and chemical technologies, including direct air capture and carbon dioxide utilization. His expertise includes computational methods, process design and techno-economic analyses to identify environmental and economic opportunities for green technologies. These modeling techniques are applied to a wide range of research questions to support experimental R&D efforts, technology development as well as to guide policy decisions. Over the years, he worked on an array of advanced electricity generation technologies, electro-chemical energy conversion processes, carbon capture and utilization systems, and the water energy nexus.

Prior to his current position at UCLA, he was a Postdoctoral Fellow at Lawrence Berkeley National Laboratory. He received his Ph.D. and M.S. in Mechanical and Aerospace Engineering from the University of California, Irvine, with specialization in the thermal sciences and he received a M.S and B.S. in Chemical Engineering from the Technical University of Munich in Germany, with a specialization in chemical process engineering.

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