

# Makenna Parkinson

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## Education

Yale University, New Haven, CT 2023-present

PhD Chemical and Environmental Engineering

Harvey Mudd College, Claremont, CA 2019-2023

BS Engineering (emphasis in Environmental Analysis)

Major GPA - 3.96; Cumulative GPA - 3.83

## Peer-Reviewed Publications

M. Weston Miller, **Makenna Parkinson**, and Albert Dato, "Lotus-Like Water Repellency of Gas-Phase-Synthesized Graphene," *ACS Materials Letters* 2022 4 (5), 995-1002.

DOI: 10.1021/acsmaterialslett.2c00125.

## Conference Presentations

**Makenna Parkinson**, Weston Miller, Albert Dato, "Water-Repelling Properties of Low-Dimensional Carbon Nanostructures," *2022 Materials Research Society Spring Meeting*, 5/8-5/13 (2022).

Albert Dato, Weston Miller, **Makenna Parkinson**, "Graphene Synthesized in Atmospheric Plasmas is Inherently Superhydrophobic," *2022 Materials Research Society Fall Meeting*, 11/27-12/2 (2022).

## Experience

Research Assistant, Claremont, CA; January 2021-December 2022

- Worked in a materials engineering lab at Harvey Mudd College (HMC) doing research on superhydrophobic carbon nanomaterials, including gas-phase-synthesized graphene and carbon black
  - Performed contact angle measurements, sliding angle measurements, and droplet impact studies on carbon nanomaterials
  - Conducted a comprehensive literature review on wettability and superhydrophobic materials
  - Established safe nanomaterial handling procedures, including work in a glove box and fume hood
- Center for Strategic and International Studies HMC Clinic, Claremont, CA; August 2022-May 2023
- Worked in a team of five to design and build a mathematical model to understand the international production and flow of clean hydrogen
  - Performed a comprehensive literature review and techno-economic analysis to build the model
  - Created a heat map of global hydrogen costs using solar and wind datasets in Python on Google Colab interface
  - Spoke with clean hydrogen technology and policy specialists about the future of clean hydrogen in the United States and globally

Arcadis Technical Intern, San Luis Obispo, CA; May 2022-February 2023

- Worked as an environmental engineering intern and learned technical writing and research skills
- Supported remediation and monitoring projects for Chevron, PG&E, and Vandenberg Space Force Base by obtaining permits, writing work plans and reports, and preparing field materials
- Presented my work and experience to my managers and coworkers at the end of the summer

NASA/JPL HMC Clinic, Claremont, CA; August 2021-December 2021

- Worked in a team of five to build a risk assessment case study for the return of samples from other planets

- A bow-tie diagram and preliminary case study were developed and presented in a mid-year written report to stakeholders at JPL
- Spoke with risk assessment experts from the energy industry and internal NASA/JPL experts on biological contamination
- Learned project management, risk assessment, laboratory, and writing skills

E4 Team Project, Claremont, CA; January 2020-May 2020

- Worked in a team of five students to design an engineering solution to a real problem on our college campus
- Designed a water collection/drainage system to protect the college's farm from flooding
- Solution was modeled using SolidWorks and design was presented to stakeholders

## Teaching and Grading Experience

Academic Excellence Facilitator, Claremont, CA; August 2021-December 2022

- Tutored students in E79 (Engineering Systems) coursework at HMC
- Participated in and led staff development meetings and contributed to the improvement of engineering pedagogy within AE

Head Grader, Claremont, CA; January 2022-May 2022

- Managed a team of eight students and assigned grading tasks for Engineering Mathematics at HMC
- Graded Engineering Mathematics coursework

Grader, Claremont, CA; August 2020-May 2023

- Graded coursework for Intro to Climate Change, Engineering Mathematics, and Materials Engineering at HMC

## Extracurriculars and Awards

Claremont-Mudd-Scripps Swim and Dive Team, 2019-2023

- Member of the varsity Swim and Dive Team as a diver
- CSCAA Scholar All-America Honor for 2021-2022 and 2022-2023 seasons
- Served as a Communications Team member (2021-2023), establishing effective communication between team members and the coaching staff

Recipient of Elks National Foundation Legacy Scholarship, 2019-2023

- Applicants are judged by how well they exhibit Elks' values of knowledge, charity, community, and integrity

## Relevant Coursework

Materials Engineering

Intro to Environmental Engineering

Chemical and Thermal Processes

Advanced Systems Engineering

Intro to Engineering Design and Manufacturing

Engineering Mathematics

Operations Research

Introduction to Computer Science

Digital Electronics and Computer Engineering

Continuum Mechanics

Comparative Environmental Politics

The Global Politics of Water

## Skills

Computer: Python (VS Code interface); MATLAB; SolidWorks; AMPL

Laboratory: Detailed, organized procedure writing; Sterile technique; Nanomaterial safety