Clare Singer
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1200 E. California Blvd., MC C1-221
Pasadena, CA 91125

Education

- **California Institute of Technology (Caltech)** — Pasadena, CA
  Department of Environmental Science and Engineering — *October 2018 - Present*
- **University of Chicago** — Chicago, IL
  BA Physics, BS Mathematics (GPA 3.957/4.0) — *September 2014 - June 2018*

Research Experience

- **Caltech, Department of Environmental Science & Engineering** — Pasadena, CA
  Advisors: Dr. Tapio Schneider and Dr. John Seinfeld — *October 2018 - Present*
  - I work on cloud dynamics and aerosol-cloud-interactions using high-resolution simulations and pencil-and-paper theory. My current projects include 1) investigating the importance of aerosol hygroscopicity on stratocumulus and cumulus cloud dynamics, 2) assessing the impact of 3D cloud morphology on Earth's radiative balance, and 3) developing a theoretical understanding for stratocumulus cloud response to CO_2 increase.
- **University of Chicago, Department of the Geophysical Sciences** — Chicago, IL
  Advisor: Dr. Liz Moyer — *January 2017 - Present*
  - Helped test, calibrate, and operate the Chicago Water Isotope Spectrometer (Chi-WIS) that flew in the StratoClim campaign in July/August 2017 over the Asian monsoon. Processed and analyzed data from the StratoClim campaign. Conducted comparisons between water measurements made in-situ and remote-sensing satellite measurements. Currently writing an instrument intercomparison paper from the campaign measurements.

Selected Publications and Presentations

1. Ming, Y., Loeb, N.G., Lin, P., Shen, Z., Naik, V., **Singer, C.E.**, et al., *Assessing the influence of COVID-19 on Earth's radiative balance.* Submitted.
2. **Singer, C.E.**, Jaruga, A., Seinfeld, J.H., *Investigating Stratocumulus Cloud Sensitivity to Aerosol Hygroscopicity using a Lagrangian Particle-based Microphysics Model*, presented at 2019 AGU Fall Meeting; San Francisco, CA; 9-13 December 2019.
3. **Singer, C.E.**, Hui, K. L., Schneider, T., *A Conceptual Model of the Climate Change Response in Stratocumulus-Topped Boundary Layers*, presented at 2019 AMS Conference on Atmospheric and Oceanic Fluid Dynamics; Portland, ME; 24-28 June 2019.
4. **Singer, C.E.**, Clouser, B., Gaeta, D.C., Moyer, E.J., *Comparison of water vapor from observations and models in the Asian Monsoon UTLS region*, Abstract A21I-2258, presented at 2017 AGU Fall Meeting; New Orleans, LA; 11-15 Dec 2017.
5. Bernstein, R., **Singer, C.E.**, Singh, S.P., Mao, C., Arnusch, C.J., *UV initiated surface grafting on polyethersulfone ultrafiltration membranes via ink-jet printing assisted modification.* J. Memb. Sci. **548** (2018).
6. Murphy, K.A., Reiser, N., Chosky, D., **Singer, C.E.**, Jaeger, H.M., *Freestanding loadbearing structures with Z-shaped particles.* Granular Matter 18, 26 (2016).

Selected Awards, Fellowships, and Honors

NSF Graduate Research Fellowship 2018-2021
John Haeseler Lewis Prize (top graduating physics major) 2018
Barry M. Goldwater Scholarship 2017
David W. Grainger Fellowship (top rising senior in physics) 2017
Astronaut Scholarship 2017
Phi Beta Kappa (top 2% by GPA) 2017

Outreach and Leadership Activities

- **SAT Math Tutor** Pasadena, CA
  Caltech Y Rise Program *2020 - Present*
  - Tutors students on SAT Math skills remotely over Zoom (due to COVID-19).
- **Caltech Title IX Student Leadership Team** Pasadena, CA
  Giving Voice script writer (2019-2020); Title IX Council member (2019-2020) *2019 - Present*
  - My work on the Student Advisory Council and with Giving Voice creates awareness around Title IX issues and provides resources for students, staff, and faculty.
- **Caltech Women in GPS** Pasadena, CA
  Vice President (2019-2020) *2019 - Present*
  - Assists club president in managing activities – including journal club discussions, workshops, and social events – communicating with faculty, and recruiting new members.
- **University of Chicago Society of Women in Physics (SWiP)** Chicago, IL
  President (2017-2018), Vice President (2016-2017), Board Member (2016) *2014 - 2018*
  - Coordinated SWiP's mentorship program for undergraduate and graduate students. Attended and organized UChicago's participation in the APS Conference of Undergraduate Women in Physics all four years, 2015–2018.

Technical Skills

- **Programming Languages:** Python, IDL, LaTeX(advanced); Julia, Bash, MatLab, SLURM (intermediate); C++, Java, Mathematica (beginner).
- **Software Knowledge:** Microsoft Office, Jupyter, Git (advanced); ImageJ, Affinity Designer, Autodesk Inventor, Adobe Illustrator and Photoshop (beginner).