#IamPhysSci: Breaking through the haze

Sukriti Kapur, Ph.D. in Chemistry
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UCI Physical Sciences Communications



Kapur’s interest in atmospheric chemistry began with her upbringing in New Delhi, ranked as having some of the worst air pollution in the world, which sparked a lifelong drive to understand and improve air quality.

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Tatiana Overly/UC Irvine

School of Physical Sciences: Let’s start with the basics! Tell us your name, major, and where you're from.

Kapur: Hi! I’m Sukriti Kapur. I’m a Ph.D. candidate in Chemistry, and I’m originally from New Delhi, India—a city that constantly reminded me of the urgency of clean air. That early exposure to poor air quality has shaped the scientist I’ve become.

SoPS: What kind of research did you do at UC Irvine?

Kapur: I study the health effects of particulate matter in different environments. Particles can generate reactive oxygen species (ROS) in the lung and cause health implications ranging from asthma to cancer. My work combines sampling from different sources such as residential wood burning and brake wear to understand ROS formation. I have sampled in different locations such as -30°C in Fairbanks, and next to freeways in southern California. I have also worked with communities impacted by pollution to better understand their lived experiences and co-develop solutions.

SoPS: Was there something special about UCI that made you want to get your Ph.D. here?

Kapur: UCI’s Atmospheric Chemistry division is world-renowned, and for me, it was a chance to learn in a truly monumental place. Knowing that I’m conducting research in the same department where Nobel laureate Professor Sherwood Rowland made groundbreaking discoveries on ozone depletion is pretty iconic. The opportunity to learn from world-class researchers here has been one of a kind; it's given me both the technical training and the inspiration to pursue meaningful, impactful work.

SoPS: Looking back at your time at UCI, what achievement are you most proud of, and what makes it special to you?

Kapur: I’m proud of the awards and honors I’ve received during my time at UCI—the Climate Justice Fellowship, the Science Communication Fellowship, the Public Impact Fellowship, and several conference recognitions. Graduate school can definitely trigger imposter syndrome from time to time, so each of these acknowledgments was a meaningful reminder of my growth, potential, and the value of the work I’m doing. They reassured me that I belong in this space and that my contributions matter.

SoPS: How have your activities outside the classroom helped you grow personally and academically while at UC Irvine?

Kapur: I have been actively involved in mentorship, outreach, and science communication roles outside of the lab, and they've been a huge part of my growth at UCI. I served as a mentor for international students through Graduate InterConnect, and for Chemistry grad students through ChemUNITY. These experiences helped me build strong leadership and interpersonal skills and showed me how important it is to have a community within academia. Being a science communication fellow has been another key experience; it has taught me how to highlight the incredible work happening in our department and helped me see the broader impact of science beyond the lab.

SoPS: Can you share a standout moment or experience at UCI that has shaped your personal growth or career goals?

Kapur: One standout experience for me was participating in the ALPACA field campaign in Fairbanks, Alaska. Collecting samples and troubleshooting instruments in -30°C temperatures, and living in challenging conditions was intense, but incredibly rewarding. It reminded me why I love fieldwork and gave me a deeper appreciation for the real-world impact of atmospheric chemistry research. That experience served as a reminder to keep working towards improving air quality and using science as a tool to drive change and protect the planet. Watching the northern lights over 5 times was definitely a wonderful bonus!

SoPS: Was there a class or professor that had a major impact on your academic journey? Tell us how they influenced you.

Kapur: I have to give my gratitude to my advisor, Professor Manabu Shiraiwa, who has significantly shaped my research path. Under his mentorship, I've not only learned how to conduct rigorous and impactful research, but I've also gained a strong foundation in scientific ethics and collaborative practices. His guidance has made a world of difference in how I think as a scientist. He has encouraged curiosity, critical thinking, and integrity at every step. I feel incredibly fortunate to have had him as my mentor, and will carry the lessons I've learned from him throughout my career.

SoPS: What do you have planned after graduation? What's next for you?

Kapur: I plan to continue working in the field of air quality and public health, ideally in a role that combines research with community engagement. I'm looking forward to applying what I've learned at UCI to help protect vulnerable communities and

contribute to evidence-based solutions for cleaner air and healthier environments. Whether it’s at a regulatory agency or a research institution, I want to keep bridging science with impact.

SoPS: Looking further ahead, where do you envision your career going, and how has your UCI education influenced these aspirations?

Kapur: Looking ahead, I see myself working at the intersection of science and policy. I envision a career where I can help shape policies that prioritize clean air and public health. I’m also deeply committed to giving back to my community, and I hope to contribute to air quality research and policy efforts in India, helping address environmental health disparities. My education at UCI has equipped me with strong scientific training and a deep sense of curiosity. It has taught me that impactful science doesn’t end at publications—it informs decisions, reaches people, and drives change. That’s the kind of work I want to continue doing.

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