

October 8, 2018

Department of Physics and Astronomy
261 Center for Natural Sciences
Ithaca College
953 Danby Rd
Ithaca, NY 14850

Dear members of the search committee,

Enclosed for your review are the materials for my application for the position of Assistant Professor in the Department of Physics and Astronomy at Ithaca College. My research leadership, strong teaching background, and extensive experience mentoring undergraduate students make me an excellent fit for Ithaca College. As a part of the Department of Physics and Astronomy, I will use the skills I have developed from two years as a professor, including a demonstrated ability to secure external funding, to build an active undergraduate-focused research group that takes advantage of world-class observational facilities. I am excited to work at an undergraduate-focused, liberal arts institution where I will be able to design and teach courses that challenge students to develop and practice skills applicable to a wide range of future careers, and to engage in cross-departmental partnerships to provide research opportunities and mentoring support for Ithaca College undergraduates in STEM fields.

I am a world expert on gas conditions in the unique and extreme environment of the center of our Galaxy. I am currently applying this experience toward producing the first parsec-scale maps of molecular gas in the center of another galaxy using the Atacama Large Millimeter Array, a project for which I already have a successful NSF grant. Ithaca College undergraduate students in my research group will actively participate in this work by collecting new observations, implementing cutting-edge data analysis techniques, and presenting results at professional meetings. The research my group will do will yield models of the physical, chemical, dynamical, and positional structure of gas in nearby galaxy centers that will constrain the role of inflow and feedback in shaping their evolution. Students in my lab will become experts not only in infrared, radio and millimeter astronomy but in technical skills such as coding, data analytics, and data visualization that will train them for a wide range of future careers. I am an experienced advisor, having independently supervised 6 undergraduate students, and established a long-term mentoring relationship with them as they write papers on the results of their research, graduate, and move on to fulfilling careers.

As a mentor, I am committed to giving students research opportunities that feed their interest in science and connect them to a global research community. Working with me, students at Ithaca College will gain valuable international experience visiting and working with my collaborators in Europe and Asia. I believe that student success also depends on their experience outside of the lab, and I devote significant time to building strong personal connections with undergraduate students in my group: taking them camping, and hosting dinners at my house. As a Jansky fellow, I led a program that provides students from underrepresented groups with summer research and year-round mentoring to succeed in a STEM career. At Ithaca College, I will use this experience to enhance and broaden the undergraduate research community in the department.

As a professor at Ithaca College, I look forward to challenging students to engage deeply in physics and astronomy topics, using my training in inquiry-based learning. I will design my courses to give students the opportunity to model real-life research and professional practices, including participating in observations, conducting open-ended investigations, writing and assessing scientific proposals, and debating topics like setting priorities for the next decade of astronomy research. Having taught two courses per semester as a professor at San Jose State, I have a proven ability to balance teaching with a robust, student-focused research program. I am excited to bring the energy and enthusiasm I have demonstrated in my research, mentoring, and teaching to the Department of Physics and Astronomy at Ithaca College.

Sincerely,

Dr. Elisabeth A.C. Mills