

October 1, 2018

Bard College
PO Box 5000
Annandale-on-Hudson, NY 12504

Dear members of the search committee,

Enclosed for your review are the materials for my application for the position of Assistant Professor in the Physics Program at Bard College. My research leadership, strong teaching background, and extensive experience mentoring undergraduate students make me an excellent fit for Bard. At Bard 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. As a professor I will engage in partnerships within the Division of Science, Mathematics, and Computing to provide research opportunities and mentoring support for Bard undergraduates in STEM fields. I will design and teach courses that challenge students to develop and practice professional skills applicable to their future careers, and I will continue work I have done teaching in prisons to become an active participant in the renowned Bard Prison Initiative.

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. Bard 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 over the next 5-10 years 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 masters and PhD programs.

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 Bard 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 Bard, I will use this experience to enhance and broaden the undergraduate research community in the department.

As a professor at Bard, I look forward to challenging students to engage deeply in their education. I will design my courses to give students the opportunity to model real-life research and professional practices, including participating in observations, writing and assessing scientific proposals, and debating topics like setting priorities for the next decade of astronomy research. At Bard, I would also continue my NSF-funded program of teaching astronomy in local prisons, and teach astronomy and physics through the Bard Prison Initiative. Having taught a two course per semester load as a professor at San Jose State, I have a proven ability to balance teaching with a robust research program. I am excited to bring the energy and enthusiasm I have demonstrated in my research, mentoring, and teaching to the physics program at Bard.

Sincerely,

A handwritten signature in black ink, appearing to read 'Elisabeth A.C. Mills', with a stylized, flowing script.

Dr. Elisabeth A.C. Mills