

December 15, 2015

Dear Professor Clemens and members of the search committee,

Enclosed for your review are the materials for my application for the position of Assistant Professor at Boston University. My research leadership, unique teaching background, and extensive experience mentoring undergraduate and graduate students make me an excellent fit for BU. I specialize in using the cutting-edge capabilities of world-class radio and millimeter facilities like ALMA and the expanded VLA to study the physical and chemical properties of the interstellar medium in the centers of galaxies. At BU I will leverage the advantage of being in a dual astronomy and space physics department to build connections between my work and current research areas from black hole accretion to the chemistry of disks and our own solar system. As a professor I will teach courses that bridge both of these fields and challenge students to develop and practice the professional skills applicable to their future careers, upholding and strengthening BUs uniquely strong undergraduate and graduate preparation.

The research I will do at BU will lead to a groundbreaking understanding of the evolution of physical and chemical conditions in the molecular gas of galaxies as a function of cosmic time, and their influence on the history of star formation. I am a world expert on gas conditions in the extreme environment of our Galactic center, and am currently using this experience to make the first parsec-scale comparison of gas in the center of our own Galaxy with that in another nearby galaxy, a transformational achievement. At BU I will train undergraduate and graduate students in radio and millimeter astronomy as well as sub-orbital and space-based infrared astronomy, preparing them to become experts in multiwavelength astronomy.

As a mentor, I am committed to giving students singular research experiences that feed their interest in science and connect them to a global research community. Working with me, students at BU will gain 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 team-building and fostering strong personal connections with students: holding group retreats, and hosting group dinners at my house. At BU, I will be a co-lead of the REU program, and will work to foster an atmosphere where there is lively interaction between undergraduates, graduate students, and faculty that enriches students professional development.

As a professor at BU, I will challenge students to develop critical professional skills by modeling real-life research practices in the classroom, from writing and assessing scientific proposals to participating in the “Astro 2020” process of setting the research priorities in astronomy for the next decade. Having spent time teaching 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 look forward to bringing the energy and enthusiasm I have demonstrated in my research, mentoring, and teaching to the BU faculty. ]

Sincerely,

Dr. Elisabeth A.C. Mills