Statement of

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before the
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On
Building a Safer Antarctic Research Environment
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Chairwoman Johnson, Ranking Member Lucas, and Members of the Committee, thank you for inviting me to share the importance of *Building a Safer Antarctic Research Environment* from a research university's perspective.

I am Angela V. Olinto, the Albert A. Michelson Distinguished Service Professor of Astronomy & Astrophysics, and the current Dean of the Physical Sciences Division at the University of Chicago. Our mission is to discover and apply fundamental laws of nature and reason, foster an inclusive and creative intellectual environment, and help shape the next generation of leading physical and mathematical scientists. Our community of faculty, researchers, teachers, students, and staff is proud of our tradition of field-defining research in the departments of Astronomy and Astrophysics, Chemistry, Computer Science, Geophysical Sciences, Mathematics, Physics, and Statistics.

In the Physical Sciences Division, the researchers engaged in research that depends on the U.S. Antarctic Program (USAP) facilities mostly belong to the departments of Astronomy and Astrophysics, Geophysical Sciences, and Physics. Some of the field-defining projects in these areas can only be done in the Antarctic continent. These projects range from small teams studying the ice sheets in Antarctica, to world-leading astronomical observatories at the South Pole, to National Aeronautics and Space Administration (NASA) sponsored scientific balloon payloads.

Our researchers (faculty, postdoctoral fellows, graduate students, and staff) are often stationed at the McMurdo Station for geophysical studies of the ice shelves, for NASA balloon launches, or on their way to the Amundsen-Scott South Pole Station. Our faculty have led a series of NASA funded scientific instruments to study astroparticle physics (i.e., cosmic rays and neutrinos) which are launched on NASA long duration balloons from McMurdo Station. A great advantage of the McMurdo Station for scientific balloons is the possibility to fly for weeks to months around the Antarctic continent following the polar vortex winds. Another advantage of flying over the Antarctic continent is the massive volume of ice that can be used as

a detector of the elusive ultrahigh-energy neutrinos, as done by pioneering radio observatories such as the Antarctic Impulsive Transient Antenna (ANITA) and the next generation Payload for Ultrahigh Energy Observation (PUEO).

The South Pole is one of the best places on Earth to study the Universe because it is about 9,300 feet in elevation with a very dry and thin atmosphere and six months of darkness during the polar winter. Since the mid 1970s, astronomers and astrophysicists have deployed telescopes at the South Pole. From 1991 to 2001, the University of Chicago led the Center for Astrophysical Research in Antarctica (CARA), a National Science Foundation (NSF) Science and Technology Center which included a number of collaborating institutions with the goal of addressing some of the major questions concerning the formation and evolution of the Universe. Over the following decades a number of telescopes significantly advanced the fields of cosmology and astroparticle physics at the Pole. Today, our researchers operate the powerful South Pole Telescope with its third-generation camera (SPT-3G) built to understand the earliest moments of the beginning of the Universe through precise studies of the fluctuations and polarization patterns of the cosmic microwave background, the leftover "light" from the Big Bang. Our researchers are also part of collaborations led by other institutions with state-of-the art instruments at the Pole. For example, we are involved on the impressive IceCube Neutrino Observatory, the leading observatory for astrophysical neutrinos worldwide headquartered at the University of Wisconsin, Madison. The IceCube observatory involves an instrumented cubic kilometer of ice to detect the most elusive high-energy particles, neutrinos, as they traverse the Earth coming from yet to be discovered very distant cosmic accelerators.

These cutting-edge research projects could not be done without the continued support of Congress, the National Science Foundation, the National Aeronautics and Space Administration (NASA), the U.S. Antarctic Program (USAP), the Leidos Antarctic Support Contract (ASC), the U.S. Air Force, and the N.Y. Air National Guard. The wide scientific community, and human curiosity in general, are extremely grateful to these unique opportunities to understand our origins, our place in the Universe, and the dynamics and limits of the planet we call home.

Given our strong commitment to supporting an inclusive environment for the diverse set of creative minds that want to contribute to these field-defining scientific efforts, it was with great concern that we learned about the findings of the Sexual Assault/Harassment Prevention and Response (SAHPR) report. As a woman in a historically male dominated field, the unwelcoming environment for women throughout STEM fields has been an important issue throughout my career. As a PhD student in theoretical physics at the Massachusetts Institute of Technology (MIT) in the 1980s, I belonged to a cohort of about 3% women. Now I am happy to report that women PhD students in the Physical Sciences Division at the University of Chicago have reached 35%, and faculty about 20%. Women scientists have become leaders of many of these groundbreaking collaborative efforts at the remote locations that I just described. We need to work harder to eradicate sexual harassment and any other kind of discrimination, harassment, or assault in STEM fields.

When I first learned about the SAHPR report, I asked some of the principal investigators and students who had been stationed in Antarctica for their own experiences. In general, they were not surprised by the findings. They reported that the remote sites and very small number of women throughout the Antarctic continent made it particularly difficult for women in general. They also reported a culture where reports of harassment were not taken seriously, consistent with the SAHPR report findings.

We commend NSF's Office of Polar Programs (OPP) for engaging with subject matter experts to examine the sexual harassment and assault concerns in the USAP community and to identify corrective actions to improve the climate and trust in the community. We agree with the need to "improve communications,

increase engagement, enhance education and training, strengthen reporting infrastructure and accountability, provide support to victims, and probe more deeply into policies and mechanisms aimed at prevention," as recommended by the report.

Universities and research teams also need to do more. We realize that the potential for unacceptable behavior can occur in other remote field locations that share the characteristics of Antarctic fieldwork: geographical isolation (where tight-knit groups work and live together without a clear separation between professional and personal lives), limited communication, and unclear hierarchical power dynamics. We want to reiterate to all in our community that discrimination, harassment, or assault in any setting is unacceptable and unlawful. All University of Chicago community members are expected to abide by the University's policies on discrimination, harassment, and sexual misconduct while performing remote fieldwork.

I requested that our Deputy Dean of Diversity and Inclusion together with our Dean of Students develop a plan to prepare our researchers who need to be in remote locations in order to work to prevent sexual harassment and assault. They collected a number of resources and best practices employed by different science collaborations (see, e.g., SPT Deployment Guide[1] and Ombuds site of the European Organization for Nuclear Research, i.e., CERN [2]) and have constructed a new *Remote Field Research* webpage[3] to inform any groups planning such activities. A common element of the best practices is the selection of an ombudsperson or a team leader among the researchers traveling with the group to be the point of contact for any difficulties that may arise. Our Dean of Students will provide some training for these team leaders before their trips. The communications between these points of contact and the University, the other institutions involved in the scientific collaboration, as well as the local infrastructure leaders (e.g., NSF, USAP, NASA, CERN, etc.), is crucial for changing the culture and preventing unacceptable and unlawful behavior such as discrimination, harassment, or assault.

The astonishing discoveries that can only be done in remote locations will continue to captivate the public and inspire future generations of diverse minds to study scientific and technical fields that will further enrich the prosperity of this great Nation. We need to do our best to provide the most welcoming and safe environments for all involved in expanding our scientific knowledge.

Thank you for listening, I will be pleased to answer any questions you may have.

[1] https://pole.uchicago.edu/spt/documents/SPT_Deployment_Guide_Sept2022.pdf
[2] https://ombuds.web.cern.ch
[3] https://physicalsciences.uchicago.edu/academics/dean-of-students/remote-field-work/