

PROMOTION RECOMMENDATION  
The University of Michigan  
College of Engineering  
Department of Climate and Space Sciences and Engineering

Susan T. Lepri, associate professor of climate and space sciences and engineering, with tenure, Department of Climate and Space Sciences and Engineering, College of Engineering, is recommended for promotion to professor of climate and space sciences and engineering, with tenure, Department of Climate and Space Sciences and Engineering, College of Engineering.

Academic Degrees:

Ph.D. 2003 University of Michigan, Atmospheric and Space Sciences, Ann Arbor, MI  
M.S. 2001 University of Michigan, Atmospheric and Space Sciences, Ann Arbor, MI  
B.S. 1999 University of Michigan, Physics, Astronomy and Astrophysics, with Distinction, Ann Arbor, MI

Professional Record:

2013 – present Associate Professor (with tenure), Department of Climate and Space Sciences and Engineering, University of Michigan  
2011 – 2013 Associate Research Scientist, Department of Climate and Space Sciences and Engineering, University of Michigan  
2005 – 2011 Assistant Research Scientist, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan  
2004 – 2005 Post-doctoral Fellow, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan

Summary of Evaluations:

Teaching: Professor Lepri is a committed and outstanding educator. She has taught seven different courses, from large-lecture, first-year courses to graduate-level courses, supervised or co-supervised 10 Ph.D. students, mentored eight post-doctoral researchers and supervises two to three undergraduates each year. Professor Lepri routinely receives excellent student evaluations in her classes, with Q2 scores between 4.0 and 5.0 over the last 10 years. In addition to classroom teaching, Professor Lepri has been mentoring undergraduates via programs such as UROP and the CLaSP REU. Her mentoring has had a large impact on students, as evidenced by the fact that many of these students have decided to attend graduate school. In addition, Professor Lepri has been an outstanding mentor to students underrepresented in engineering. She is the co-PI of the department's Provost/CRLT Faculty Community for Inclusive Teaching (FCIT) activities. Professor Lepri also participates in a broad range of activities within the college to support mentoring. In recognition, in part, for her mentoring and commitment to diversity, Professor Lepri was awarded the Willie Hobbs Moore-Claudia Joan Alexander Trailblazer Award in 2019 by the UM Women in Science and Engineering (WISE).

Research: Professor Lepri is the most successful female experimentalist in the field of solar and solar wind physics. She conducts research on the composition of the solar wind through the analysis and interpretation of data collected by instruments on current NASA satellites. She also

helped develop a new composition instrument, the *Heavy Ion Sensor*, which was launched in February 2020 on the European Space Agency (ESA) *Solar Orbiter* mission and she is responsible for the science data center. She is the principal investigator on a major NASA technology-development effort. Currently, Professor Lepri is responsible for every working solar wind composition instrument in space. Her research is published in over 65 articles in refereed journals, and she has a Google scholar h index of 26. She has one paper in *Nature*, the highest ranking journal, and 46 papers in top tier journals. With the launch of Professor Lepri's instrument on *Solar Orbiter*, and her responsibilities for the science data center for this instrument, a dramatic increase in her publication rate is expected. Professor Lepri's research is well funded. The science data center for her *Heavy Ion Sensor* on the recently launched *Solar Orbiter* mission is funded at nearly \$8 million. Her technology development activities are funded by nearly \$2 million.

#### Recent and Significant Publications:

- Rivera, Y. J., Landi, E., Lepri, S. T., Gilbert, J. A., "Empirical modeling of CME evolution constrained to ACE/SWICS charge state distributions," *Astrophysical Journal*, 874(2), 2019.
- Kocher, M., Landi, E., Lepri, S. T., "Tracking filament evolution in the low solar corona using remote sensing and in-situ observations," *Astrophysical Journal*, 860(1), 2018.
- Lepri, S. T., Raines, J. M., Gilbert, J. M., Cutler, J., Panning, M., Zurbuchen, T. H., "Detecting negative ions on board small satellites," *Journal of Geophysical Research: Space Physics*, 122(4), 3961-3971, 2017.
- Galeazzi, M., Chiao, M., Collier, M. R., Cravens, T., Koutroumpa, D., Kuntz, K. D., Lallement, R., Lepri, S.T., McCammon, T., Morgan, K., Porter, F. S., Robertson, I. P., Snowden, S. L., Thomas, N. E., Uprety, Y., Ursino, E., Walsh, B. M., "The origin of the local 1/4-keV X-ray flux in both charge exchange and a hot bubble," *Nature*, 512, 171-173, 2014.
- Lepri, S. T., Landi, E., Zurbuchen, T. H., "Solar wind heavy ions over Solar Cycle 23: ACE/SWICS measurements," *Astrophysical Journal*, 768, article id. 94, 2013.

Service: Professor Lepri has an extensive record of sustained high-quality service at UM and nationally, with noteworthy efforts in DEI and local outreach. Professor Lepri has been an active, contributing citizen to her department, college and university, serving consistently on many committees. In recent years, she has thrived in leadership roles, being elected to the faculty senate, serving as the associate director of education for the Space Institute, co-leading the Dean's Advisory Committee on Female Faculty, and serving as a member of the CoE Research Advisory Counsel. Professor Lepri is a strong and effective DEI champion with a sustained record of supporting and advocating for many communities including women, single parents, LGBTQIA+, faculty of color, and more. She has consistently supported Advance and is now serving as a strong voice on the Advance Advisory Board for CoE. Her passion for empowering the next generation is exhibited by her commitment to SWE activities and her being an advisor to WISE, to supporting Diversity Ally/G.R.E.A.T. Grad school or NextProf workshops.

Professor Lepri is a long-term regular reviewer for high-impact journals, being recognized for the superb quality of her service with the Editors' Citation award for Excellence in Refereeing for the *Journal of Geophysical Research - Space Physics*. She has had a strong and directional voice on various NASA advisory committees, and external review committees. Notably, she

advocated at the NSF National Hazards Exhibition on Capitol Hill to support research into Space Weather.

External Reviewers:

Reviewer A: “Sue has taken instrument development and management in her stride throughout her career and her key contributions to Solar Orbiter SWA Heavy Ion Sensor, in particular, is a major achievement.”

Reviewer B: “Prof. Lepri’s accomplishments and impact merit promotion to full professor. Her CV shows a very strong balance of journal publications, invited presentations, and extramural funding. I am also impressed by the educational aspects of her CV, including the number and quality of the courses she has taught and very good student evaluations, as well as the PhD students and postdocs she has advised, and particularly the number of undergraduate students she has mentored.”

Reviewer C: “I have little doubt that she will continue to be an attractor and fantastic advisor for students at UofM, an advocate and practitioner for top-notch science. ... Sue will be a tremendous asset to the University and College as a Professor with Tenure.”

Reviewer D: “...I am totally persuaded that Dr. Susan Lepri will be a leading, key scientist in this solar and heliospheric multi-messenger era. ... Susan has done seminal work in the identification in the heliosphere of material from eruptive prominences.”

Reviewer E: “Susan will continue to lead proposals to NASA on Solar and Heliophysics and deserves in my view to be promoted to the rank of Professor.”

Summary of Recommendation: Professor Lepri is a committed and outstanding educator and mentor to undergraduate and graduate students. She performs forefront research on the composition of the solar wind, develops new instruments for measuring solar wind composition, and she is responsible for every working solar wind composition instrument in space. She has an extensive record of sustained high-quality service at the University of Michigan and nationally. It is with the support of the College of Engineering Executive Committee that I recommend Susan T. Lepri for promotion to professor of climate and space sciences and engineering, with tenure, Department of Climate and Space Sciences and Engineering, College of Engineering.



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Alec D. Gallimore, Ph.D.  
Robert J. Vlasic Dean of Engineering  
College of Engineering

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