

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Michael W. Liemohn, associate professor of atmospheric, oceanic and space sciences, with tenure, Department of Atmospheric, Oceanic and Space Sciences, College of Engineering, is recommended for promotion to professor of atmospheric, oceanic and space sciences, with tenure, Department of Atmospheric, Oceanic and Space Sciences, College of Engineering.

Academic Degrees:

Ph.D. 1997 University of Michigan, Atmospheric and Space Science, Ann Arbor
M.S. 1995 University of Michigan, Atmospheric and Space Science, Ann Arbor, MI
B.S. 1992 Rose-Hulman Institute of Technology, Physics and Mathematics, Terre Haute, IN

Professional Record:

2009 – present Associate Professor (with tenure), Department of Atmospheric, Oceanic and Space Sciences, University of Michigan
2006 – 2009 Associate Professor (without tenure) and Research Associate Professor, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan
2003 – 2006 Research Associate Professor, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan
1998 – 2003 Assistant Research Scientist, Department of Atmospheric, Oceanic and Space Sciences, University of Michigan

Summary of Evaluation:

Teaching: Professor Liemohn is an excellent educator, both inside and outside of the classroom. He has taught a range of courses, from a large survey course on the changing atmosphere that is aimed at non-science majors, to two upper-level undergraduate courses on geophysical electromagnetics and on solar-terrestrial relations, and two advanced graduate courses on space weather modeling and space weather forecasting. He uses very innovative methods in these advanced courses. His performance in the classroom has yielded very high student evaluations. His typical Q1/Q2 scores for graduate level courses are 4.33/4.50. Q1/Q2 scores for advanced undergraduate courses are 4.30/4.80. Evaluations for his freshman level survey courses are 3.85/4.33. He puts significant effort into class preparation and into helping his students learn, and this is highly respected and appreciated by those students. Professor Liemohn is also an outstanding mentor. He has graduated four Ph.D. students, with four more currently under his supervision. In addition, he has advised several Master's degree students, many of whom have contributed directly to his research projects and publications.

Research: Professor Liemohn is a nationally and internationally renowned leader in the field of inner magnetospheric physics. His main contributions focus on the relation between the magnetospheric ring current and geomagnetic storms that might cause space weather effects ranging from power grid disruptions to telecommunication blackouts. More recently he also became interested in the space environment of Mars that needs to be understood if we undertake a systematic exploration of the red planet.

Professor Liemohn is an extraordinarily prolific researcher. He has published over 115 papers in leading journals. His h-index is 22, an exceptionally high number for a scientist at this stage of his career. He has

raised over ten million dollars in research support, counting only his share of collaborative projects. He is presently the principal investigator of NASA and NSF grants totaling over five million dollars.

Recent and Significant Publications:

- Liemohn, M. W. and Katus, R., "Is the storm time response of the inner magnetospheric hot ions universally similar or driver dependent?" *Journal of Geophysical Research*, 117, A00L03, doi: 10.1029/2011JA017389, 2012.
- Liemohn, M. W., De Zeeuw, D. L., Ilie, R. and Ganushkina, N. Yu., "Deciphering magnetospheric cross-field currents," *Geophysical Research Letters*, 38, L20106, doi: 10.1029/2011GL049611, 2011.
- Liemohn, M. W., Jazowski, M., Kozyra, J. U., Ganushkina, N., Thomsen, M. F. and Borovsky, J. E., "CIR vs. CME drivers of the ring current during intense magnetic storms," *Proceedings of the Royal Society A*, 466(2123): 3305-3328, doi: 10.1098/rspa.2010.0075, 2010.
- Fang, X., Liemohn, M. W., Nagy, A. F., Luhmann, J. G. and Ma, Y., "Escape probability of Martian atmospheric ions: controlling effects of the electromagnetic fields," *Journal of Geophysical Research*, 115, A04308, doi: 10.1029/2009ja14929, 2010.
- Fang, X., Liemohn, M. W., Nagy, A. F., Luhmann, J. G. and Ma, Y., "On the effect of the Martian crustal magnetic field on atmospheric erosion," *I*, 206, 130, doi: 10.1016/j.icarus.2009.01.012, 2010.
- Ilie, R., Liemohn, M. W. and Ridley, A., "The effect of smoothed solar wind inputs on global modeling results," *Journal of Geophysical Research*, 115, A01213, doi: 10.1029/2009JA014443, 2010.

Service: Professor Liemohn performs extensive professional service. He is exceptionally successful and engaged as a scientific community leader. He serves on numerous highly important committees, most recently on a working group of the 2013 Solar and Space Physics Decadal Survey. He is leading high profile activities such as Focused Science Teams, and he held the position of chair of the Geospace Environment Modeling Steering Committee. Very few community members show this breadth of successful leadership roles, at such an early stage in their careers, and even fewer are capable of simultaneously maintaining his exceptional level of scientific productivity. Internally, he has been a chair of his department's graduate admission committee, a member of the awards committee, the graduate committee and the AOSS executive committee.

External Reviewers:

Reviewer A: "I strongly recommend Dr. Liemohn for promotion...I am hoping that once he is promoted he will take a sabbatical at [my university] so we can collaborate on research projects – and perhaps I could learn some teaching tips."

Reviewer B: "...I strongly support Associate Professor Liemohn's promotion to Professor. This will be apt recognition for a thoughtful scholar who has had significant impact on space science through his research, teaching, and service, and who shows the promise of even greater impact on the field in the future."

Reviewer C: "...in light of his scientific and leadership abilities, promise, and his character, I have no hesitation to recommend him in the strongest possible terms for a promotion to Professor at the University of Michigan."

Reviewer D: "Mike has continued his strong scholarship and leadership within the magnetospheric physics community about which I wrote at the time of his tenure review...I heartily endorse his promotion to the rank of Professor at the University of Michigan."

Reviewer E: "After evaluation of the materials sent to me, and knowing of Dr. Liemohn's research work through largely the literature (and from some talks), I have no hesitation in supporting his promotion to

Full Professor with tenure in the Department of Atmospheric, Oceanic, and Space Sciences at the University of Michigan.”

Reviewer F: “He is a productive, respected, and highly cited scientist, he is a leader in our scientific community, and he is dedicated to teaching and involving students in research. I am therefore enthusiastic in my recommendation that Dr. Michael Liemohn be promoted to Full Professor.”

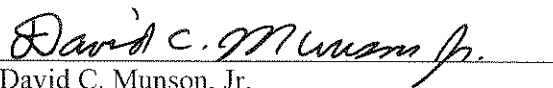
Reviewer G: “Mike would be an outstanding member of any department of Space Sciences in any major research university. I am confident that he will continue to excel in research, teaching, and service as he has already done. I strongly support this promotion.”

Reviewer H: “...I strongly support the promotion of Dr. Michael W. Liemohn to full professor. He has made major scientific contributions across a broad range of space and planetary physics, and has thereby gained significant notice in his specialty in geophysics. Michael Liemohn is quite evidently a prominent leader of our field of research.”

Reviewer I: “...I believe that Liemohn meets and well exceeds the minimum requirements for promotion at the University of Michigan. He has established a strong record of continued scientific discovery and service, has demonstrated leadership, and has gained broad national and international stature in several different branches of space physics. I therefore strongly recommend that he be promoted to Professor of Atmospheric and Space Science with tenure.”

Reviewer J: “[Dr.] Liemohn’s work is of the highest caliber and he is certainly one of the leading scientists [of his cohort] in the world today engaged in the modeling of the Earth’s magnetosphere and its coupling to the Earth’s upper atmosphere.”

Summary of Recommendation: Professor Liemohn is a very prominent and very productive space scientist who has made significant contributions to the field of terrestrial and Martian inner magnetospheric physics. He is an excellent teacher and mentor; and he is a leader who contributes far above the norm to both external and internal service. It is with the support of the College of Engineering Executive Committee that I recommend Michael W. Liemohn for promotion to professor of atmospheric, oceanic and space sciences, with tenure, Department of Atmospheric, Oceanic and Space Sciences, College of Engineering.



David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

May 2013