

PROMOTION RECOMMENDATION  
The University of Michigan  
College of Literature, Science, and the Arts

Edwin A. Bergin, associate professor of astronomy, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of astronomy, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	1995	University of Massachusetts
B.S.	1989	Villanova University

Professional Record:

2007 – present	Associate Professor, Department of Astronomy, University of Michigan
2003 – 2007	Assistant Professor, Department of Astronomy, University of Michigan
2000 – 2003	Astrophysicist, Harvard-Smithsonian Center for Astrophysics
1995 – 2000	Astronomer, Harvard-Smithsonian Center for Astrophysics

Summary of Evaluation:

Teaching – Professor Bergin is an excellent instructor at all levels. He has put a great deal of effort into the introductory astronomy courses for non-majors, modernizing existing classes and developing new ones. One of his new courses, “Introductory Astrobiology: The Search for Life in the Universe,” has become very popular. He regularly has undergraduates doing research with him on material that is included in research papers that are published in leading professional journals. In the upper level undergraduate and graduate courses, he includes content that no other faculty member can offer.

Research – Professor Bergin is an astrochemist whose research area is a branch of star formation that is a rapidly developing field. He has established himself as an intellectual and scientific leader in his field. Originally known for his theoretical work, he has become one of the most successful observers in the field and was invited to be the principal investigator of a key project at the new Herschel Space Observatory, an infrared and far-infrared telescope. He is the only U.S. scientist with that distinction. His work is greatly valued by his peers and he has been extremely successful in attracting funding.

Recent and Significant Publications:

- “Herschel observations of extra-ordinary sources: The present and future of spectral surveys with Herschel/HIFI,” with N. Crockett, et al., *Astronomy and Astrophysics*, 521, 2010, p. L20.
- “Sensitive limits on the abundance of cold water vapor in the DM Tau protoplanetary disk,” with the WISH team, *Astronomy and Astrophysics*, 521, 2010, L33.
- “The chemical evolution of protoplanetary disks,” to be published in *Physical Processes in Circumstellar Disks Around Young Stars*, P. Garcia (ed.), University of Chicago Press, 2009, arXiv:0908.3708.
- “Formation and survival of water vapor in the terrestrial planet-forming region,” with T. Bethell, *Science*, 326, 2009, p. 1675.

Service – Professor Bergin is a trusted member of the department and is regularly called upon to serve on important committees, such as those involved in faculty hiring, tenure promotion cases, advancement to candidacy examinations, and as one of the principal writers of the departmental Long Range Plan. He has served on the Faculty Senate and recently begun a new role as the undergraduate advisor for the Department of Astronomy. Professor Bergin has served on many national and international committees, such as advisory committees to the national optical and radio telescope institutions, the National Science Foundation, and the National Aeronautics and Space Administration.

External Reviews:

Reviewer (A)

“Bergin’s scientific interests are quite broad. They deal mainly with the molecular gas in galaxies, its role in star formation, and more recently photo-planetary disks. ...observing and modeling water in protoplanetary disks has become a cutting-edge part of star and planet formation. Ted Bergin is a recognized leader in this endeavor.”

Reviewer (B)

“Through both spectral-line observing and theoretical work, Ted has made seminal contributions to our understanding of the chemistry of water in space, and he has defined much of the current picture of the astrochemistry of dark clouds, dense cores, protoplanetary disks, and comets. ...Ted is also a fantastic speaker and teacher. ... The sheer volume of work Ted has produced is astonishing, but what is more surprising is its value across so many areas within the fields of star and planet formation.”

Reviewer (C)

“Bergin is very active and has written a large number of papers. ...[‘The Solar Nebula on Fire...’] describes a sensible coherent model to explain a fundamental fact about the Earth – it is very low in carbon compared to the Sun or ‘cosmic abundances.’ The problem is central to our understanding of the formation of terrestrial planets... ...Bergin is among the top scientists of his age group who specialize in molecular astrophysics; I cannot think of anyone that I would rank higher.”

Reviewer (D)

“...astrochemistry presently is making great strides forward with Herschel, in part under Ted’s leadership. ... He is one of the top scientists in his field in (and even beyond) his [generation]. His pioneering work...established the importance of water...as a most important component of dense interstellar environments. ...this work is greatly confirmed and vastly extended by Herschel, to a large part again under his leadership.”

Reviewer (E)

“...he is very effective at conveying current ideas in a straightforward way. Few frontline researchers are so talented. ... I would rank Dr. Bergin among the very top researchers in the field...particularly in the area of how the basic objects of the Universe, stars and planets, form and evolve. As both an observer and theorist, he brings a rare combination of talents to bear on the emerging story the new instruments are producing.”

Reviewer (F)

“Ted is known worldwide as an expert in the chemistry of the gas and dust which form stars and planets. He is trained as a theorist but he is also a distinguished observer and a leader of observational projects. Such expertise is rare but extremely desirable... Ted is more accomplished, and much more of an intellectual leader, than many senior scientists [at my institution]...”

Reviewer (G)

“...[Ted] is a superb scientist and mentor and I recommend unequivocally that you proceed with the promotion. ... In addition to pursuing his own research, I have observed Ted to be a very generous mentor... At conferences or at meetings of the HEXOS collaboration, he is always eager to seek out and give friendly guidance to the postdocs or students in attendance.”

Reviewer (H)

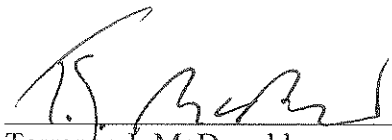
“It is essential for a department to have someone in this field, because it is now a significant fraction of the astronomy effort in the world as evidenced by the major projects Herschel and ALMA, both of which are billion dollar projects and probably represent the major investment in astronomy through the coming decade. Ted is surely in the top few scientists in the world in this field.”

Reviewer (I)

“Ted’s presentations at conferences and workshops are always excellent: he is a very good and stimulating speaker. ... Looking ahead, Ted has an excellent research program laid out. ... He has also been very successful in securing grants. ... Ted is one of the very best and most active scientists of his generation and has grown into a world leader in the interdisciplinary world of astrochemistry.”

Summary of Recommendation:

Professor Bergin is clearly a leader in his field and he effectively brings that work into the classroom making it accessible at the introductory level as well as to advanced undergraduate and graduate levels. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Edwin A. Bergin be promoted to the rank of professor of astronomy, with tenure, College of Literature, Science, and the Arts.



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Terrence J. McDonald  
Arthur F. Thurnau Professor,  
Professor of History and Dean  
College of Literature, Science, and the Arts

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