

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

Approved by the Regents
May 17, 2007

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

Academic Degrees:

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

Professional Record:

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| 2003 – present | 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 teacher and an innovative instructor of students at all levels. During his short time at Michigan he has completely overhauled the distribution course on planets, modernizing the material and increasing enrollment sharply. Graduate students give him strong reviews for his course on interstellar medium where he brought in his expertise in molecular spectroscopy and chemistry. Students praise him for his clarity and organization as well as his ability to deal with complex subjects.

Research – Professor Bergin has established himself as a leader in understanding the chemistry of cool clouds and star-forming regions in interstellar space, and is widely regarded as one of the top interstellar chemists in the world. He has an impressive, highly-cited publication record with 48 papers in the premier US publication in astronomy and five in the premier journal in solar system studies. He is the only US principal investigator guaranteed time observations on the European Space Agency's Herschel Space Observatory. He was also selected to write two very high-profile review articles – one covering disk chemistry and the other molecular cloud cores. These assignments are highly prestigious tasks that reflect the regard the research community has for him.

Recent and Significant Publications:

- “Chemical Evolution of Protoplanetary Disks,” with Y. Aikawa, et al., *Protostars and Planets V*, B. Reipurth, et al. (eds.), University of Arizona Press, 2006.
- “Molecular Cloud Formation behind Shock Waves,” with L. W. Hartmann, et al., *Astrophysical Journal*, 612, 2004, pp. 921-939.
- “Molecular Excitation and Differential Gas-Phase Depletions in the IC 5146 Dark Cloud,” with D. R. Ciardi, et al., *Astrophysical Journal*, 557, 2001, pp. 209-225.
- “Formation of Interstellar Ices behind Shock Waves,” with D. A. Neufeld and G. J. Melnick, *Astrophysical Journal*, 510, 1999, pp. L145-L148.

Service – Professor Bergin has served on departmental committees including the curriculum, faculty search, and graduate admissions as well as the telescope time allocation committee. He has served on multiple proposal review panels for the National Aeronautics and Space Administration and the National Science Foundation. Beyond the normal level of service for junior faculty was his performance as chair of a major faculty search committee that led to two senior hires.

External Reviews:

Reviewer (A)

“Among the most significant of Ted’s contributions are those that pointed the way to new approaches to analysis of conditions prior to star formation. ... After many years of study... the field was quite confused... ...[Bergin’s work with Langer] established the basic understanding of the effects of freeze-out of gas-phase species onto dust grains, allowing a sensible interpretation of the data.”

Reviewer (B)

“I have only the very highest regard for the depth and breadth of Ted Bergin’s research work and consider him among the very best of the astronomers [of his generation] working in the areas of star and planet formation, and in particular, astrochemistry and astrobiology. His outstanding ability to carry out both observational and theoretical research is rather unique.”

Reviewer (C)

“Modeling of the physical and chemical properties of molecular gas is a complex process... Ted Bergin has a unique ability to handle this complexity... ...his research nicely complements that of the other theorists and observers at the University of Michigan...”

Reviewer (D)

“...Ted’s accomplishments unequivocally justify this promotion at the present time. The breadth and depth of Ted’s research are truly impressive, he has been eminently successful in securing funding, his teaching appears to be excellent, and his promise for the future is bright. There should be no reluctance to proceed.”

Reviewer (E)

“I consider the Astronomy Department at Michigan to be fortunate to have attracted Ted. ... I can only think of the delight with which David M. Dennison, who, half a century ago, was so active as a chemical physicist in Ann Arbor, would be viewing what Ted is doing now. ... This clearly is an area where Michigan has long had a tradition. Who better to uphold it than Ted Bergin?”

Reviewer (F)

“Ted Bergin is one of the top scientists world-wide in the field of astrochemistry. This is reflected by numerous invitations to give reviews and colloquium talks and the very good citation rate of his papers. Very recently he was the lead author on one of the review papers for *Protostars and Planets V* which is seen as one of the most prestigious invitations for scientists in the field of star and planet formation. This review paper gives a very good and balance view of the field and will certainly serve as one of the key references in the coming years.”

Reviewer (G)

“...Ted is one of the leading molecular astronomers [of his generation] in the world, working on a wide variety of projects...mainly in fields related to stellar and planetary formation. He is both an observer in the radio and infrared regions, and a theoretician and modeler, using calculations of chemical abundances to infer both present and past physical conditions... Where he finds the time for all of his activities, I do not know.”

Reviewer (H)

“In my opinion, 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 (I)

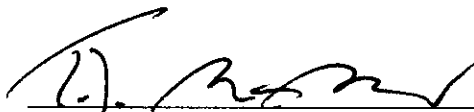
“What sets Ted apart...is his ability to seamlessly combine his theoretical modeling directly with observations.”

Reviewer (J)

“Bergin has an unusually long publication list for someone at his stage, due to the fact that he spent eight years on the staff at the Center for Astrophysics prior to moving to Michigan. ...I predict that he will have a very productive career at Michigan...”

Summary of Recommendation:

Professor Bergin is widely recognized as one of the leading astrochemists of his generation. He is also a capable instructor and is a unifying force in the Department of Astronomy. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Edwin A. Bergin be promoted to the rank of associate professor of astronomy, with tenure, in the College of Literature, Science, and the Arts.



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

May 2007