

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

Mateusz Ruzzkowski, 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:

Ph.D.	2000	University of Cambridge
M.A.	1997	University of Warsaw

Professional Record:

2007 – present	Assistant Professor, Department of Astronomy, University of Michigan
2006 – 2007	Postdoctoral Associate, Max Planck Institute for Astrophysics
2003 – 2006	Chandra Fellow and Senior Research Associate, University of Colorado, Boulder
2001 – 2003	Post-doctoral Research Associate, Astrophysical Theory Group, University of Colorado, Boulder

Summary of Evaluation:

Teaching – Professor Ruzzkowski is an excellent instructor who offers high-quality classes. He has taught at every level and he is capable of teaching a wide range of courses. For the 100-level courses, he uses demonstrations with great effectiveness and has developed new ones that were enthusiastically received by students and are now used by other instructors. Professor Ruzzkowski's research uses cutting edge techniques combined with a deep physical insight, and he has involved undergraduates, graduate students, and post-doctoral scholars in these research activities. He has participated in curriculum development for both undergraduate and graduate courses. He is on numerous Ph.D. committees and is an effective mentor.

Research – Professor Ruzzkowski is a theoretical astrophysicist who uses gas-dynamical simulations to model astronomical phenomena. Most of the normal matter in the Universe is gaseous, so being able to model it is of prime importance. He is one of the most highly regarded theorists of his cohort and is regularly sought out for invited talks and for his insight into the work of others. Professor Ruzzkowski has a strong publication record and his papers are frequently cited. He is well-funded in a highly competitive grant process and has built an active and effective research group with graduate students, postdoctoral research associates, and undergraduates.

Recent and Significant Publications:

“The Fermi bubbles: Supersonic AGN jets with anisotropic cosmic ray diffusion,” with H.-Y. K. Yang, et al., *The Astrophysical Journal*, in press.

“Shaken and stirred: Conduction and turbulence in clusters of galaxies,” with S. Oh and S. Peng, *The Astrophysical Journal*, 713, 2010, 1332.

“Dual black holes in merger remnants - I. Linking accretion to dynamics,” with M. Dotti, et al., *Monthly Notices of the Royal Astronomical Society*, 396, 2009, 1640.

“Impact of tangled magnetic fields on fossil radio bubbles,” with T. Enßlin, et al., *Monthly Notices of the Royal Astronomical Society*, 378, 2007, 662.

Service – Professor Ruzkowski has served effectively on several important committees with a wide range of duties. He improves the intellectual discourse within the department, offers valuable advice, and makes the department a more collegial place. In the broader world he has served regularly as a referee for several of the major journals in his field and as an invited panelist on National Science Foundation and National Aeronautics Space Administration panels, among others.

External Reviewers:

Reviewer (A)

“I consider him to be one of the top few researchers in the computational modeling of cluster astrophysics. He pays more attention to the important microphysics than most, but also sees the bigger picture and how to bring data and numerical models together to address important questions. His publication record is strong for a theorist in his field at his career stage, with approximately 30 papers in leading peer-reviewed journals.”

Reviewer (B)

“Mateusz has gone on to produce a body of work that establishes him as a leader in modeling the physics of the intracluster medium (ICM) in clusters of galaxies. ...[his] work particularly stands out for its sophisticated treatment of physics.”

Reviewer (C)

“I am convinced that he is one of the best and most original researchers in the field of numerical simulation of cluster cores. He uses a variety of codes and deeply thinks about the relevant subgrid physics. ... Mateusz...seems more aware of the data than most. His papers are...deep investigations of processes and their effects.”

Reviewer (D)

“He is the type of theorist who is of great value to observers by developing detailed models that are useful for interpreting the data, and consequently can promote and develop valuable collaborations within a department and beyond. ...I believe that Dr. Ruzkowski would be a good candidate for promotion at this institution.”

Reviewer (E)

“...he is an emerging leader in his field, an outstanding asset to the University of Michigan and an excellent candidate for this promotion. He would, without doubt, be a very strong candidate in my Department. ... Mateusz’ productivity is excellent...”

Reviewer (F)

“Mateusz is a creative theorist who is interested not in hammering out results with a code. He solves difficult problems motivated by forefront observation. ...I believe his best work lies ahead of him.”

Reviewer (G)

“Ruszkowski possesses a powerful combination of skills – a deep knowledge of physics, technical prowess...and a keen eye for important but tractable astrophysical problems. This potent mixture of skills makes him one of the most innovative computational astrophysicists [of his generation] in the world and, in particular, has allowed him to make a significant impact on our understanding of clusters of galaxies.”

Reviewer (H)

“Mateusz has been quite productive, with 30 refereed publication[s] during the 2000-2011 period, which is a rate of about 2.5 per year. Of these refereed publications, he is the first author for 17. His papers are very well-cited. I note that Mateusz has been successful at getting grant support.”

Summary of Recommendation:

Professor Ruszkowski is an excellent scholar, a committed educator, and a valuable citizen in his department and the wider profession. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Mateusz Ruszkowski be promoted to the rank of associate professor of astronomy, with tenure, 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 2013