

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

Marta Volonteri, 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.	2003	University of Milan
M.S.	1999	University of Milan

Professional Record:

2007 – present	Assistant Professor, Department of Astronomy, University of Michigan
2004 – 2006	Research Associate, Institute of Astronomy, University of Cambridge
2002 – 2004	Postgraduate Research Astronomer, Department of Astronomy and Astrophysics, University of California at Santa Cruz

Summary of Evaluations:

Teaching – Professor Volonteri is an effective and popular teacher to our undergraduate students and an accomplished mentor to upper-level undergraduates and graduate students, here and in Europe. She has already trained successful students and postdoctoral scholars.

Research – Professor Volonteri is the leading expert on the formation, growth, and mergers of supermassive black holes. Her work defines the field and informs the design of future space-based facilities designed to detect gravitational waves. She has also made important contributions to our understanding of the re-ionization of the universe and the X-ray background. Her research is comparable to senior professors at other institutions who have won prestigious awards. Her grant funding has been good and consistent since her appointment at Michigan, but the recent award of a large multi-year grant from the National Aeronautics and Space Administration places her in new league.

Recent and Significant Publications:

“Supermassive binary black holes: Expectations at $z < 1$,” with J. Miller and M. Dotti, *The Astrophysical Journal Letters*, 703, 2009, p. 86.

“Cosmological black hole spin evolution by mergers and accretion,” with E. Berti, *The Astrophysical Journal*, 684, 2008, p. 822.

“Gravitational recoil: Signatures on the massive black hole population,” *The Astrophysical Journal Letters*, 663, 2007, p. 5.

Volonteri, M. & Rees, M. J., 2006, “Quasars at $z=6$: the survival of the fittest,” with M. J. Rees, *The Astrophysical Journal*, 650, 2006, p. 289.

Service – Professor Volonteri’s service at Michigan and nationally has been excellent. She has served heroically in a number of ways, including as an organizer of two journal club groups, on the Chairs Advisory Committee, Student Recruiting Committees, and as the leader of a successful open search for a new faculty member.

External Reviews:

Reviewer (A)

“Marta has made extraordinary contributions to our understanding of the astrophysical role of massive black holes in the few years since her thesis work. ... Her prospects for future contributions to astrophysics are exceptional, and I recommend her strongly for promotion and tenure at this time.”

Reviewer (B)

“I would describe the thrust of her research as an effort to understand the principles underlying the evolution of supermassive black holes and the physical process that establish[es] the black hole–galaxy connection. This is a fundamental topic of research in contemporary astrophysics... Understanding how today’s supermassive black holes were seeded, how they grew in mass and how they have influenced the process of galaxy formation and evolution represents one of the most exciting challenges in modern astronomy.”

Reviewer (C)

“Marta’s more recent papers, addressing the formation of billion-solar-mass black holes in the first Gyr of the universe, are also particularly timely and important. Explaining the presence of these objects is theoretically challenging... One of the issues is that seed black holes are easily lost, during mergers... The process discussed in Marta’s 2006 paper with Rees (‘Survival of the Fittest’), is the most attractive way I am aware of to avoid this issue.”

Reviewer (D)

“...I endorse Marta’s promotion. ...she is rapidly establishing herself as a leader in theoretical black hole astrophysics.”

Reviewer (E)

“Marta has matured into a world-class astrophysicist, one of the most skilled and energetic theorists of her generation. She is clearly making unique and important contributions to all aspects of studies of the coevolution of black holes and galaxies in hierarchical scenarios of structure formation. Within the international community, she enjoys a reputation for being highly original and innovative and for always offering new physical insights... I would have no doubt in recommending Marta for promotion to tenure in my own department.”

Reviewer (F)

“Marta’s production in her particular field dwarfs that of any other single researcher... It is no exaggeration to say that she is the ‘go-to’ person; if you are organizing a conference and you want someone to speak about the assembly and merger of supermassive black holes from a semi-analytical standpoint, or if you want to know about low-frequency gravitational waves from supermassive black hole binaries, you invite Marta first.”

Reviewer (G)

“Should she receive promotion and tenure at the University of Michigan? To that I can answer an emphatic ‘yes.’ ...Marta’s an outstanding astronomer and you’re very fortunate to have her on your faculty.”

Reviewer (H)

"...I am familiar with the work of many researchers worldwide as it pertains to gravitational wave observations... ...Marta's work has been central to gaining a quantitative understanding of the science impact of such observations. ... When I am interested in a question that pertains to populations of massive black holes and their dependence on model assumptions about dynamical processes, Marta's work is the first that I consult."

Reviewer (I)

"...my impression of her productivity has been further enhanced by reading the four papers in the package you sent, which had not yet actually been published. They exemplify that she has the range of expertise that should help her to be a leader in synthesizing a firmer understanding of what happened in the Universe between redshifts 20 and 6. ...she...is destined to be one of the leading scientists in her cohort working in high energy astrophysics and galactic formation."

Summary of Recommendation:

Professor Volonteri is an outstanding researcher; an excellent teacher, advisor, and mentor; and a very generous citizen. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Marta Volonteri 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

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