

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

Kayhan Gültekin, 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.	2006	University of Maryland, College Park
M.S.	2001	University of Maryland, College Park
B.A.	1999	University of Pennsylvania, Philadelphia

Professional Record:

2016-present	Assistant Professor, Department of Astronomy, University of Michigan
2009-2016	Assistant Research Scientist, Department of Astronomy, University of Michigan
2006-2009	Post-doctoral Fellow, Department of Astronomy, University of Michigan

Summary of Evaluation:

Teaching: Professor Gültekin has been a strong contributor to teaching within the Department of Astronomy and has taught at all educational course levels (distribution, undergraduate major, graduate). His value as an effective teacher to the department is demonstrated by his excellence in teaching Astronomy 201, the flagship class for the astronomy major. Professor Gültekin led this class, and its associated comprehensive laboratory experience, through a global pandemic where he exhibited innovation as a teacher and strong dedication to our students. Professor Gültekin has made important contributions in the area of undergraduate and graduate research within the department, where he is known as a skilled and effective mentor.

Research: Professor Gültekin is a world leader in the astrophysics of supermassive black holes ranging from characterization of the fundamental plane of black hole accretion to the determination of their masses and scaling relations and has advanced the field of X-ray imaging of dual active galactic nuclei. He has a strong and broad research grasp that extends to both observations and theory with a noted rigor to his treatment of statistics in his research publications. Through his involvement in the NANOGrav collaboration, he has helped add astrophysical context regarding the demographics of binary supermassive black holes to the pioneering detection of the low frequency gravitational wave background. Professor Gültekin's expertise in the gravitational wave astrophysics of merging supermassive black holes opens a new window of astrophysical discovery for the Department of Astronomy.

Recent and Significant Publications:

Agazie, G., et al. (2023). The NANOGrav 15 yr data set: Evidence for a gravitational-wave background. *The Astrophysical Journal Letters*, 951(1), L8.

Gültekin, K., Nyland, K., Gray, N., Fehmer, G., Huang, T., Sparkman, M., Reines, A.E., Greene, J.E., Cackett, E.M., and Baldassare, V. (2022). Intermediate-mass black holes and the

Fundamental Plane of black hole accretion. *Monthly Notices of the Royal Astronomical Society*, 516(4), 6123-6131.

Foord, A., Gültekin, K., Runnoe, J.C., and Koss, M.J. (2021). AGN triality of triple mergers: Detection of faint x-ray point sources. *The Astrophysical Journal*, 907(2), 71.

Gültekin, K., King, A.L., Cackett, E.M., Nyland, K., Miller, J.M., Di Matteo, T., Markoff, S., and Rupen, M. P. (2019). The fundamental plane of black hole accretion and its use as a black hole-mass estimator. *The Astrophysical Journal*, 871(1), 80.

Service: Professor Gültekin has served on numerous time-consuming committees in his department, including as leader of the Diversity, Equity, and Inclusion (DEI) committee, the graduate admissions committee, and as a chair/member of the graduate preliminary examination committee. Professor Gültekin, in the role of the DEI committee chair, has engaged on the department's behalf with the American Association for the Advancement of Science Sea Change program. Professor Gültekin's service is highly appreciated in the department which recognizes his diligence, professionalism, and commitment toward our community, educational, and scientific goals.

External Reviewers:

Reviewer (A): "Prof. Gültekin has made some impressive contributions to the field of supermassive black hole science. His publication record is strong, and he has an impressive record of securing observing time."

Reviewer (B): "The rapidly increasing diversity of Dr. Gültekin's contributions makes it hard to compare Dr. Gültekin to other individuals in his field, because there are few if any colleagues who bring together so many different approaches. To choose one sub-area—dual black holes—one could readily place the quality and impact of Dr. Gültekin's work in the same league as that of Julie Comerford (tenured at Colorado) or Jenny Greene (tenured at Princeton)."

Reviewer (C): "Dr. Gültekin's recent works have presented exciting new discoveries, especially regarding the fundamental plane of black-hole accretion, intermediate-mass black holes, dual active galactic nuclei in X-ray imaging, SMBH masses and scaling relations, and, most recently, gravitational-wave constraints upon the SMBH binary population. They have had a substantive impact upon my thinking."

Reviewer (D): "I am always impressed with the quality of [Professor Gültekin's] work. He is a very careful and very thorough researcher. He has a strong grasp of statistics (for which I am jealous). I have great respect for his scientific integrity, his pedagogical clarity, and his boundless enthusiasm for black holes."

Reviewer (E) "In short, Prof. Gültekin is a highly regarded leader who is recognized world-wide in his field, and who has clearly demonstrated exceptional performance in research."

Reviewer (F): "Prof. Gültekin's central role in immensely important projects such as NANOGrav and LISA, also are an indication that his earlier work in this area was extremely prescient. He clearly has had his finger on the pulse of this field and anticipated where it would

lead, and judging from his research output as well as his leadership roles, is very well-positioned to continue acquiring funding to lead a substantial group in the next decade(s).”

Summary of Recommendation:

Professor Gültekin is a leading scientist who has made important and substantive contributions that have advanced humanity’s understanding of the supermassive black holes that lie in the hearts of galaxies. This work is breaking new ground as it extends into the new domain of gravitational wave astrophysics. Professor Gültekin is an innovative and effective educator who is dedicated to the educational mission of the University of Michigan. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Kayhan Gültekin be promoted to the rank of associate professor of astronomy, with tenure, College of Literature, Science, and the Arts.



Anne Curzan, Dean
Geneva Smitherman Collegiate Professor of
English Language and Literature, Linguistics,
and Education
Arthur F. Thurnau Professor
College of Literature, Science, and the Arts

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