Approved by the Regents May 21, 2015

PROMOTION RECOMMENDATION
The University of Michigan-Flint
College of Arts and Sciences
Department of Computer Science, Engineering, and Physics

Rajib Ganguly, assistant professor of physics, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences, is recommended for promotion to associate professor of physics, with tenure, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences.

Academic Degrees:

Ph.D.	2002	Pennsylvania State University, State College, Pennsylvania
B.S.	1996	University of Arizona, Tucson, Arizona

Professional Record:

2009-Present	Assistant Professor of Physics, University of Michigan-Flint
2008-2009	Instructor of Astronomy, University of Wyoming, Laramie
2005-2009	Post-doctoral Research Scientist, University of Wyoming, Laramie
1998-2002	Research Assistant, Pennsylvania State University
1996-1998	Teaching Assistant, Pennsylvania State University

Summary of Evaluation:

Teaching – Examination of Professor Ganguly's syllabi and course materials provides strong supporting evidence of his commitment to effective teaching and facilitation of student learning. His syllabi are well-articulated, complete, and very detailed. All required information, including descriptions, learning outcomes (both for physics and general education), book information, office hours, grading scales, information on coursework, as well as an extensive schedule of course activities, are included. His scores on student evaluations are consistent with those of a polished teacher. The students appreciate Professor Ganguly's efforts to engage them in experiential learning through hands-on lab exercises, as well as his use of a variety of techniques to teach the course material. In addition to creating one new astronomy course, AST 120, he has also invested considerable effort in reorganizing the Astronomy courses to better fit with the new General Education program and adopting the studio format employed in the Physics 100- and 200-level courses. Both student and peer evaluations of Professor Ganguly's teaching are consistently positive and demonstrate that he is a fine teacher.

Research – Professor Ganguly's research is focused on the radiation output of the regions surrounding these central black holes in galaxies as well as analyzing the gaseous wind being driven from these regions. As several reviewers stated, in the astrophysics community scholarly work is judged through refereed publications in major astronomical journals, such as the *Astrophysical Journal*, in which Professor Ganguly has published. Other important indicators used for evaluating scholarly quality are the ability to obtain external funding, and for an observational astrophysicist, the ability to obtain observing time on telescopes. Since telescope time is highly

competitive, the fact that he has been extremely successful in obtaining time is a further testament to the respect he has earned within the community. Professor Ganguly has regularly published in high quality peer reviewed journals as well as received funding from competitive sources to continue his observational work at prestige astronomical locations. His scholarship is cited regularly in his field of expertise.

Recent and Significant Scholarly Activity:

Refereed Publications:

Berrington, R. C., Brotherton, M. S., Gallagher, S. C., Ganguly, R., Shang, Z., Chaterjee, R., Lacy, M., Gregg, M. D., Hall, P. B. and Laurent-Muehleisen, S. A. (2013). "The X-ray Spectrum and Spectral Energy Distribution of FIRST J155633.8+351758: A LoBAL Quasar with a Probably Polar Outflow," *Monthly Notices of Royal Astronomical Society* (MNRAS).

Ganguly, R., Lynch, R. S., Charlton, J. C., Eracleous, M., Tripp, T. M., Palma, C., Sembach, K. R., Misawa, T., Masiero, J. R., Milutinovic, N., Lackey, B. D. and Jones, T. M. (2013). "A Census of Quasar-Intrinsic Absorption in the Hubble Space Telescope Archive: Systems from High Resolution Spectra," *Monthly Notices of Royal Astronomical Society* (MNRAS).

Runnoe, J., Ganguly, R., Brotherton, M. S. and DiPompeo, M. A. (2013). "Rest-Frame Optical Properties of High-Redshift, Radio-Selected, Broad Absorption Line Quasars," *Monthly Notices of Royal Astronomical Society* (MNRAS) 433, 1778.

Wei, P., Shang, Z., Brotherton, M. S., Cales, S. L., Hines, D. C., Dale, D. A., Ganguly, R. and Canalizo, G. (2013). "Mid-Infrared Spectral Properties of Post-Starburst Quasars," *The Astrophysical Journal* (ApJ).

Cales, S. L., Brotherton, M. S., Shang, Z., Runnoe, J. C., DiPompeo, M. A., Bennert, V. N., Canalizo, G., Hines, K. D., Stoll, R., Ganguly, R. and Diamond-Stanic, A., (2013). "The Properties of Post-Starburst Quasars Based on Optical Spectroscopy," *The Astrophysical Journal* (ApJ) 762, 90.

Recent Conference Proceedings:

Ganguly, R., and Stark, M. A. (2012). "Evolution of Astronomy Education at a Small Four-Year Institution: Studio Astronomy at The University of Michigan-Flint," in *Communicating Science*, ed. Barnes, Manning, Shupla, and Gibbs.

Brotherton, M. S., Cales, S., Ganguly, R., Shang, Z., Canalizo, G., Stoll, R., Paul, C. and Diamond-Stanic, A. M. (2010). "Post-Starburst Quasars," in IAU Symposium, 267, 105.

Recent Abstracts and Circulars:

Roberts, A., Cullington, C., Derseweh, J. A., Muzahid, S., Charlton, J. C. and Ganguly, R. (2014). "Understanding Low-Redshift Quasar Outflows Using Intrinsic NV Absorption Lines," *Bull. AAS*, 223, #458.11.

Rosenwasser, B., Muzahid, S., Norris, J., Charlton, J. C., Rodriguez Hidalgo, P., Wakker, B. P., Narayanan, A., Misawa, T., Churchill, C. W., Mathes, N., Nielsen, N. and Ganguly, R. (2014). "Constraining the Properties of OVI in the $0.4 < z < 1.0$ Circumgalactic Medium," *Bull. AAS*, 223, #458.02.

Service – Likely, his most significant service contribution is as the creator and primary organizer of AstroNite, which is a biannual event scheduled in conjunction with International Astronomy Day. This event is a service to both the university and to the greater Flint community. As an indicator of the popularity this event, nearly 100 people attended AstroNite. In other words, 100 community members experienced the UM-Flint campus due to AstroNite. Professor Ganguly has been very much engaged in service to his department and UM-Flint generally. The result was the establishment of a very successful event that will be continued in subsequent years. At the level of the university, Professor Ganguly was deeply involved in the STEM Initiative Task Force that produces a highly influential report which was used to generate more funding for the sciences. In addition to his work as a referee, proposal reviewer, and member of a number of professional societies, his work with AstroNite has strengthened university ties with the Longway Planetarium. In other service activities, at the college level, he has served on a faculty search committee for the Department of Earth and Resource Science, as well as spending significant time on the LEO Review Committee, from 2010 to 2014.

External Reviewers:

Reviewer (A): "Professor Ganguly is doing high quality observational detective work in a collaborative setting with other highly talented astronomers, many located at world class institutions. He is using data obtained from best astronomical instrumentation (Hubble Space Telescope, The Spitzer Space Telescope, the Chandra X-Ray Observatory and the Keck telescope)… I rank Professor Ganguly's work as comparing favorably the work of others in his peer group. He has an amazingly successful record of research publications."

Reviewer (B): "Dr. Ganguly is best known for his work on observations of outflows of gas driven from supermassive black holes… I can say is that he is a fine scientist whose results are respected by, and influence the community in which he works."

Reviewer (C): "…I am impressed by the citation history of Prof. Ganguly's work. The aforementioned 2008 paper by Ganguly and Brotherton has been cited 93 times. Any paper that receives nearly 100 citations (and in only 5 years) is one that has had a significant impact on the astronomical community… There are not a lot of *Hubble* proposals awarded to principal investigators outside of major research universities in a given year. These successful proposals are another indication that the work Prof. Ganguly is pursuing (and is planning to pursue) is judged very positively by his peers in the astronomical community."

Reviewer (D): "In astronomy and astrophysics the main measures of scholarly output are the number of refereed publications in major astronomical journals, the ability to obtain external funding to support research activities, and for an observational astronomer, the ability to obtain observing time on telescopes. Dr. Ganguly certainly meets my criteria for a productive, successful, scientist in all three areas. His success in obtaining HST Archival and Astrophysical Data Analysis Program (ADP) grants from NASA in this tough funding environment is especially noteworthy."

Reviewer (E): "Regarding his publication record, Rajib has 26 peer-reviewed publications. This is a reasonable number for someone who has been active for approximately 16 years (counting his publications while in graduate school), particularly since he has spent the last 5 years at UM-Flint."

Reviewer (F): "By reviewing the publications presented in the materials presented to me, Dr. Ganguly's work is of high quality and meets the expectation of 'significant positive' contribution… Dr. Ganguly received, as Principle Investigator, an HST Cycle 20 archival grant. Having served on the panel that reviews these grants (albeit in a different cycle), I can attest that success in such a proposal means that both the science case and the belief that the work can be done are strong."

Reviewer (G): "In my opinion, he uses industry-standard spectral analysis techniques, and his statistical analysis is solid, with some interesting innovations in his recent papers."

Summary of Recommendation:

Professor Ganguly is an excellent teacher, innovative scholar, and committed colleague. I fully concur with the Executive Committee of the College of Arts and Sciences and enthusiastically recommend that Rajib Ganguly be promoted to associate professor of physics, with tenure, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences.

Recommended by:

Albert C. Price

Albert C. Price, Interim Dean
College of Arts and Sciences

Recommendation endorsed by:

Barbara B. Dixon

Barbara B. Dixon, Interim Provost and
Vice Chancellor for Academic Affairs

Susan E Borrego

Susan E. Borrego, Chancellor
University of Michigan-Flint

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