

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

Sarah L. Veatch, assistant professor of biophysics, and assistant professor of physics, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of biophysics, with tenure, and associate professor of physics, without tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2004	University of Washington
M.S.	2001	University of Washington
B.S.	1998	Massachusetts Institute of Technology

Professional Record:

2010 – present	Assistant Professor, Program in Biophysics and Department of Physics, University of Michigan
2008 – 2010	Miller Independent Scientist Program (MISP) Fellow, Cornell University
2006 – 2010	Post-doctoral Researcher, Department of Chemistry and Chemical Biology, Cornell University
2005 – 2006	Post-doctoral Researcher, Department of Microbiology and Immunology, University of British Columbia
2005 – 2005	Research Associate in Biological Physics, Department of Physics, University of Washington

Summary of Evaluation:

Teaching – Except for a course buy-out required by the National Institutes of Health for her K99/R00 career development award, Professor Veatch has taught a full load in the Program in Biophysics. She is a dedicated teacher who has performed well above expectations, especially in renovating existing courses and initiating new ones. She first focused her efforts on the advanced biophysics laboratory, which was a very new course created by moving the Program of Biophysics into the College of Literature, Science, and the Arts and creating the undergraduate major in biophysics. Professor Veatch reformulated the curriculum and transformed it into a well-designed central feature of the biophysics' undergraduate laboratory experience. Professor Veatch also initiated a new freshman seminar course in fall 2016, "DNA Origami," which brings together aspects of computer-aided design, molecular engineering, and single molecule imaging, and demonstrates many of the techniques that are key to biophysics and emerging biotechnologies. The department believes this new course will become a valued part of its undergraduate curriculum and will stimulate student interest in biophysics as well as other STEM majors.

Research – Professor Veatch's research involves fundamental investigations of the biophysical nature of compositional fluctuations of cellular membranes, which has significant implications for our understanding of biology and cellular function as well as large potential for biomedical applications. Her research findings have started to unravel the mysteries surrounding the interplay between membrane organization and protein interactions in early B-cell signaling in

living cells. Professor Veatch's most recent experiments show a co-localization of B-cell receptors with ordered membrane domains. These advances have launched her into an international leadership position within her research field. She has been very productive in disseminating the results of her research through publications in well-respected journals, and in presenting her work at symposia and other institutions. The number of competitive and prestigious awards she has won is further evidence her impact and visibility.

Recent and Significant Publications:

"The continuing mystery of lipid rafts," with I. Levental, *Journal of Molecular Biology*, 2016, in press.

"Visualization of HIV-1 Gag binding to Giant Unilamellar Vesicle (GUV) membranes," with B. Olety and A. Ono, *Journal of Visualized Experiments*, 2016, in press.

"Conditions that stabilize membrane domains also antagonize n-Alcohol anesthesia," with B. Machta, et al., *Biophysical Journal*, 111(3), 2016, pp. 537-545.

"Spot size variation FCS in simulations of the 2D Ising model," with M. Burns and M. Nouri, *Journal of Physics, D Applied Physics*, 49(21), 2016, p. 214001.

Service – Professor Veatch has served on numerous departmental committees, including the Graduate Admissions, Curriculum, and faculty search committees. Her tireless efforts and sound judgment have led to her recognition as a valued voice that is appreciated by her colleagues. She is also a member of numerous dissertation committees beyond those of her own students, showing how much her support and advice are appreciated by the graduate students. At the university level, Professor Veatch's service on the Faculty Senate Assembly is notable, as is her engagement with the WISE summer program and the LGBTQ professor panel. At the national level, Professor Veatch has reviewed manuscripts and grant proposals, and is a member of the editorial advisory board for the *Journal of Chemistry and Physics of Lipids*.

External Reviewers:

Reviewer (A)

"Without hesitation I can state she is highly deserving of this promotion based on her accomplishments throughout her career and especially since she established her own program at Michigan. ...Professor Veatch has already made major contributions to the field of membrane physical chemistry as it translates into biological systems. In particular, she is contributing to both biophysics and cell biology by developing novel methodologies to characterize the functional consequences of lateral heterogeneity in cell plasma membranes. Her trajectory continues to soar upward."

Reviewer (B)

"...it bodes very well that Professor Veatch has been recognized by several prestigious awards at the junior level, including a Sloan Foundation fellowship and NSF CAREER award, which build on her prior record at the University of Washington as a graduate student, as well as [s] postdoctoral researcher at Cornell University. She has achieved a level of research funding which is highly commendable for her career stage... She is also [a] sponsor of a postdoctoral fellowship in the area of super-resolution imaging and plays a role in a number of collaboration[s] in which she is a co-principal investigator. All of the indicators for a high level of future success at this career stage are very strong."

Reviewer (C)

“I consider Sarah Veatch’s achievements in all points very valuable, with a significant contribution to the community when compared to other researchers in this field. The published work is excellent and of very high quality and originality. ... Veatch has gained a high international standing and reputation.”

Reviewer (D)

“Dr. Veatch’s talent has not gone unnoticed, as she is a winner of several prestigious awards in...membrane biophysics, including an NSF CAREER award and the Margaret Oakley Dayhoff award from the Biophysical Society. Her outstanding reputation is international and far exceeds that of an average candidate for promotion at her stage, as evidenced by the large number of national and international invited talks she lists on her resume.”

Reviewer (E)

“She is perhaps best known for her Ph.D. thesis work with Sarah Keller in which she mapped miscibility phase diagrams for lipid mixtures in giant unilamellar vesicles (GUVs). This work is now classic, and taught in undergraduate courses on membranes all over the world. ... Her...[current] research work is expanding, she has secured good funding, she is well known nationally and internationally, and she appears to be a popular teacher as well. I believe she would get tenure at my institution with this track record...”

Reviewer (F)

“...I have enjoyed revisiting papers that Prof. Veatch has produced since joining the University of Michigan. Throughout the process, I appreciated the consistently high quality of her research. I cannot find any weakness in any part of her portfolio. More than one of her publications made me envious that I had not made the discovery first. ...Professor Veatch is highly qualified for promotion... Her research is outstanding, and her teaching and service are strong.”

Summary of Recommendation:

Professor Veatch has importantly advanced her field of membrane mediated organization and signaling in biology through her research and publications, while at the same time contributing significantly to the growth and development of the Biophysics Enhanced Program through her efforts in teaching, curriculum development, and committee work. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Sarah L. Veatch be promoted to the rank of associate professor of biophysics, with tenure, and associate professor of physics, without tenure, College of Literature, Science, and the Arts.



Andrew D. Martin, Dean
Professor of Political Science and Statistics
College of Literature, Science, and the Arts

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