

PROMOTION RECOMMENDATION  
The University of Michigan  
School of Public Health  
Department of Biostatistics

Approved by the  
Regents  
May 21, 2015

Lu Wang, assistant professor of biostatistics, Department of Biostatistics, School of Public Health, is recommended for promotion to associate professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health, University of Michigan.

Academic Degrees:

Ph.D. (Biostatistics)	2008	Harvard University
M.S. (Biostatistics)	2004	University of Michigan
B.S. (Statistics)	2002	Peking University

Professional Record:

2008-present      Assistant Professor, Department of Biostatistics, University of Michigan

Summary of Evaluation:

Teaching: Professor Wang has taught biostatistics 601 (one of our core courses, introducing students to probability and distribution theory) five times, Biostatistics 653 (another one of our core courses, covering mixed models and analysis of variance) twice, biostatistics 880 (a PhD level course discussing advanced methods for analysis of missing data) twice, and biostatistics 830 (a special topics course) once. Overall, she has done an excellent job with evaluations that are typically excellent (except for somewhat lower evaluations on biostatistics 653). She is a valued teacher and has demonstrated ability to teach a variety of our courses well. She has also been active in advising students. She currently advises one Ph.D. and two master's students. She is a fantastic mentor. She has chaired or co-chaired three completed doctoral thesis and has served as a doctoral committee member several times.

Research: Professor Wang has a superb research record. She has 35 published articles (with five more in press). She has five first author papers and two papers where a doctoral student is the first author and Professor Wang is a senior author (we consider these as equivalent to first author papers, since we encourage our faculty to provide students with opportunities to be first authors on papers). She has several more papers submitted or in preparation.

Professor Wang has made diverse, creative and insightful methodological contributions to a variety of different and extremely challenging topics. Among others, her contributions include an excellent 2010 paper in the *Journal of the American Statistical Association* describing useful methodology for non-parametric and semi-parametric regression in the presence of missing data; an important 2012 paper in the *Journal of the American Statistical Association* describes methodology for the clinical trials evaluating the adaptive treatment regimens that are expected to be a key feature of personalized medicine; and an outstanding 2013 paper in *Biometrika* that

extends the current gold-standard of double-robustness for statistical analysis with missing data to allow for multiple robustness, a tour-de-force that allows with missing data to consider multiple alternative models for the missing observations. Her 2014 paper in *Biometrical Journal* is similarly excellent, illustrating how mastery of functional data analysis enables one to derive interesting observations from a very challenging dataset.

In addition to contributions to statistical methodology, Professor Wang has been actively involved on a variety of grant funded projects and collaborative research. These have spanned a wide diversity of topics ranging from cancer, to neighborhood poverty, to lupus, to environmental exposures during pregnancy.

#### Recent and Significant Publications:

- Wang, L., and Choi, H. (2014). Using Semiparametric Mixed Models and Functional Linear Models to Detect Vulnerable Prenatal Window to Carcinogenic Polycyclic Aromatic Hydrocarbons on Fetal Growth. *Biometrical Journal*, 56(2): 243-255.
- Wang, F., Wang, L., and Song, P. (2012). Quadratic Inference Function Approach to Merging Longitudinal Studies: Validation Test and Joint Estimation. *Biometrika*, 99: 755-762.
- Han, P., and Wang, L. (2013). Estimation With Missing Data: Beyond Double Robustness. *Biometrika*, 100: 417-430.
- Wang, L., Rotnitzky, A., and Lin, X. (2010). Nonparametric Regression With Missing Outcomes Using Weighted Kernel Estimating Equations. *Journal of the American Statistical Association*, 105(491): 1135-1146.
- Wang, L., Rotnitzky, A., Lin, X., Millikan, R., and Thall, P. (2012). Evaluation of Viable Dynamic Treatment Regimes in a Sequentially Randomized Trial of Advanced Prostate Cancer (with discussions). *Journal of the American Statistical Association*, 107(498): 493-508.

Service: Professor Wang's service is substantial and important. She has been a regular and key contributor to the admissions and candidacy committees, both extremely demanding. She is a key contributor to the top statistical meetings, a regular reviewer for outstanding journals, and an editor for one of the top journals in our field. She is also active in mentoring of doctoral students.

#### External Reviewers:

Reviewer (A): "Her 2013 paper in *Biometrika* on multiple robustness is a gem and a major departure from her thesis work. The importance, novelty and practicality of her method is impressive... There is no question that if she were here we would consider her a major rising star in our department and she would be promoted and given tenure."

Reviewer (B): "I find her key papers [on missing data] to be creative, technically deep and of high practical value – a difficult balance to strike but a hallmark of high-impact statistical research... I imagine any top department would be thrilled to have her on its tenured faculty and she certainly possesses all of the key traits of a successful tenure case at [my institution]."

Reviewer (C): “She is definitely at the top among her peers...She is in excellent standing in the profession and I am convinced we will see a lot from her in time to come. Any institution having Professor Wang among the faculty should consider itself lucky.”

Reviewer (D): “Her teaching and mentoring record easily meets or surpasses what would be expected of individuals in comparable positions at other institutions, both in volume and in quality, and is deserving of promotion to Associate Professor.”

Reviewer (E): “Dr. Wang’s biostatistical research is independent, with great productivity in the past 6 years.”

Reviewer (F): “Dr. Wang’s statistical methodology and collaborative research has been well supported by many grants. I am confident that with her rapidly strengthening credentials she will obtain major grants as PI from funding agencies such as NIH and NSF.”

Reviewer (G): “I think that Dr. Wang is one of the rising researchers who will bring high impact contributions to the fields of missing data and personalized medicine. I am very confident that she would be promoted if she were considered in my department.”

#### Summary of Recommendation

Professor Wang has made creative and diverse contributions to methodology for non-parametric and semi-parametric regression, to methods for robust estimation with missing data, to the analysis of clinical trials with dynamic treatment regimens and to functional data analysis. She is an excellent teacher and is active in service to her profession. It is with the support of the School of Public Health Executive Committee that I recommend Lu Wang for promotion to associate professor of biostatistics, with tenure, Department of Biostatistics, School of Public Health.



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Martin A. Philbert  
Dean, School of Public Health

May 2015