PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF NEUROLOGY
MEDICAL SCHOOL AND COLLEGE OF ENGINEERING
DEPARTMENT OF BIOMEDICAL ENGINEERING

William C. Stacey, M.D., Ph.D., assistant professor of neurology, Department of Neurology, Medical School, and assistant professor of biomedical engineering, Department of Biomedical Engineering, Medical School and College of Engineering, is recommended for promotion to associate professor of neurology, with tenure, Department of Neurology, Medical School, and associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, Medical School and College of Engineering.

Academic Degrees:

M.D.	2002	Case Western Reserve University
Ph.D.	2000	Case Western Reserve University
B.S.	1995	Brigham Young University

Professional Record:

2010-present	Assistant Professor of Neurology, University of Michigan
2010-present	Assistant Professor of Biomedical Engineering, University of Michigan
2008-2010	Instructor, Department of Neurology, University of Pennsylvania

Summary of Evaluation:

Teaching: Dr. Stacey has provided outstanding teaching at all levels since his appointment at Michigan and this activity comprises 15% of his effort. He mentored nine undergraduates, two rotating doctoral students, two medical students, two master's students, three post-doctoral fellows, and is now primary advisor for three Ph.D. students. This mentoring has extended nationally, working with clinical fellows as the chair of the junior investigator workshop in the American Epilepsy Society and at a training workshop for the American Neurological Association. He teaches neurology residents and epilepsy fellows regularly throughout the year in clinical rotations, EEG reading, and in five one-hour didactic lectures. He is an annual guest lecturer in two graduate school courses (BME 599, NS 616), and is official faculty for an entire unit of BME 419/519 (Biomedical Engineering), for a total of eight hours of classroom teaching to over 120 students a year. He has served on the Ph.D. committee of 13 students, one of them as the committee chair, and has been a mentor on three post-doctoral training grants (two PTSP grants, one NIH K01 grant). Teaching evaluations for clinical training, didactics, and classroom teaching have all been excellent (> 4 out of 5).

Research: There are multiple lines of research in the Stacey lab. The most important involves using engineering techniques to analyze human EEG data to identify new biomarkers of epilepsy

and understand seizure networks. This combination of neurophysiology, engineering, statistics, and clinical epilepsy is a unique niche that has become Dr. Stacey's primary international reputation and led to an international collaboration with researchers in Marseille. The second line of research is the development of an animal model in which the seizure threshold can be manipulated, allowing exploration of early seizure biomarkers and rapid testing of anti-seizure therapies. This novel model was invented in the Stacey lab and has been invited for presentation at several international meetings (Society for Neuroscience, Gordon Conference, Biodynamics Workshop). This model is currently being used to acquire serial microdialysis samples, in collaboration with Dr. Robert Kennedy (Michigan, Chemistry) to analyze chemical changes prior to seizures, a project that was a featured awardee of the 2015 MiBrain Initiative grant. Finally, the EEG analysis tools are helpful in assessing other diseases, and Dr. Stacey is collaborating with Dr. Robert Neumar (Michigan, Emergency Medicine) to perform neurological assessments in several models of cardiac arrest and Dr. Jack Parent (Michigan, Neurology) to quantify epileptic drug response in human cell culture. All of these projects are actively progressing successfully. Dr. Stacey has published 34 peer-reviewed manuscripts, has been the PI on an NIH K08 and R01, a Doris Duke Charitable Foundation, and a MiBrain Initiative grant, and has successfully mentored another faculty (Stephen Gliske) in receiving an NIH K01 grant. He received the "best poster" award at the International Seizure Prediction Workshop in Germany, which is the premier conference in his specialty field, and has been invited to speak in England, Australia, Germany, France, Canada, and several locations in the U.S. In addition, his expertise has led him to be invited to serve on multiple national and international grant review panels, and the editorial board of two journals.

Recent and Significant Publications:

Stacey WC, Le Van Quyen M, Mormann F, Schulze-Bonhage A: What is the present-day EEG evidence for a preictal state? *Epilepsy Research* 97:243-251, 2011.

Pearce A, et al. and Stacey WC: Temporal changes of neocortical high frequency oscillations in epilepsy. *J Neurophysiol* 110:1167-1179, 2013.

Stacey WC, et al: Potential for unreliable interpretation of EEG recorded with microelectrodes. *Epilepsia* 54:1391-1401, 2013.

Jirsa V, Stacey WC, Quilichini PP, Ivanov A, Bernard C: On the nature of seizure dynamics. *Brain* 137:2210-2230, 2014.

Gliske SV, et al. and Stacey WC: Universal automated high frequency oscillation detector for real-time, long term EEG. *Clinical Neurophys* 2015. 10.1016/j.clinph.2015.07.016.

Service: In addition to regular service as faculty in the Epilepsy Division, Dr. Stacey has been involved in several committees while at Michigan. He developed the Michigan hospital protocol for prognostication in patients undergoing hypothermia after cardiac arrest, and has been serving as a member of the DSMB for a Phase I clinical trial of valproic acid for several years. He is a founding member of the Translational Neural Engineering group, which includes seven different labs at Michigan across multiple departments. At the national level, Dr. Stacey serves on the

International League Against Epilepsy task force, is the co-chair of an upcoming International Seizure Prediction Workshop, is an NIH Benchmark Steward, and is the co-chair of the Engineering and Neurostimulation group in the American Epilepsy Society. He is a very frequent reviewer for a large number of journals, and is an associate editor for the *Journal of Neuroscience* and *Epilepsy Currents*.

Professional Work: Dr. Stacey currently has 25% clinical effort. His clinical effort is comprised of 1) inpatient epilepsy monitoring (one month/year), EEG reading (two half days/month), epilepsy clinic (three half days/month), intraoperative monitoring (two days/month). In addition, he is responsible for reading the evoked potential studies at the VA hospital (six half days/year). Within the Epilepsy Division, he is primarily responsible for teaching and implementation of new technologies into clinical practice, most recently the adoption of next-generation EEG hardware allowing for high resolution recordings in all epilepsy surgery patients.

External Reviewers:

Reviewer A: "I estimate Dr. Stacey's standing in relation to others in Dr. Stacey's peer group who are working in the same field to be outstanding. His service contributions both to Neurology and more specifically epilepsy are very impressive and many."

Reviewer B: "Dr. Stacey's work in the field of seizure prediction is what initially drew my interest in his activity, and I have had opportunity to hear this described and demonstrated now on many occasions, and have been uniformly impressed by the depth and sophistication of his work in this complex area. Given the stage of his career, the quantity of his output is appropriate and impressive, particularly given the nature of the work. What is most obvious is that he has kept a very clear focus on his research area, and even his cross-over into the cardiac work involves his expertise in evoked potentials as a biomarker of potential for recovery from hypoxic brain injury. His work has certainly been influential, and I think this is reflected in his citations (H-Index of 16 according to Google Scholar), invitations to national and international meetings, and his various editorial board involvements."

Reviewer C: "I have frequently referred to his scientific work and always appreciate his contributions that advance our field in epilepsy care. He has maintained a continued funding stream on high frequency oscillations and contributed greatly to big data work for epileptogenic markers. I am looking forward to further results of his work as it may revolutionize our field."

Reviewer D: "He is uniquely well trained in his chosen area of specialization, mathematical and biomedical engineering analysis of EEG recordings of seizures and epilepsy. He showed early promise and has clearly lived up to it. Dr. Stacey works in a highly competitive area of research in analysis of EEG of seizures and epilepsy and has become nationally recognized in this field."

Reviewer E: "Dr. Stacey's service to the community is very strong. He is highly regarded in the field, having given an impressive list of invited lectures. He has served on several NIH study sections and is also currently serving on the editorial board of Epilepsy Currents, Journal of Neuroscience, and the American Heart Association. I know of no other assistant professor that has served on so many editorial boards and NIH study sections."

Summary of Recommendation:

Dr. Stacey is a well-respected epilepsy specialist with a nationally and internationally recognized research program. He has established strong research collaborations and is becoming a leader in the field of epilepsy biomarkers. We strongly recommend William C. Stacey, M.D., Ph.D. for promotion to associate professor of neurology, with tenure, Department of Neurology, Medical School, and associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, Medical School and College of Engineering.

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