

**PROMOTION RECOMMENDATION**  
The University of Michigan  
College of Engineering

Approved by the Regents  
May 20, 2010

Alan J. Hunt, associate professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering, is recommended for promotion to professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering.

Academic Degrees:

Ph.D. 1993 University of Washington, Biophysics, Seattle, WA  
B.A. 1986 University of California, Biochemistry and Cell Biology, San Diego, CA

Professional Record:

2004-present	Associate Professor (with tenure), Department of Biomedical Engineering, University of Michigan
2004-2010	Research Assistant Professor, Institute of Gerontology, University of Michigan
1998-present	Assistant Research Scientist, Institute of Gerontology, University of Michigan
1998-2004	Assistant Professor, Department of Biomedical Engineering, University of Michigan
1994-1998	Postdoctoral Fellow, University of Colorado

Summary of Evaluation:

Teaching: Professor Hunt has a strong teaching record and a coherent vision for his educational methodology. This vision is focused on bringing life sciences to engineering students in a way that is just as quantitative as other courses in the traditional engineering curricula. Professor Hunt has developed two new courses at the University of Michigan. BME 418, "Quantitative Cell Biology," is a core course within the biomedical engineering program, with the enrollment growing to well over 80 students. Professor Hunt also introduced a second, graduate-level course entitled, "Molecular and Cellular Biomechanics." His evaluation scores range from average to far above average. This is an excellent record, particularly considering the large enrollment of BME 418.

Professor Hunt has graduated nine Ph.D. students and has several more on track to graduate within the next year or two. Two of his Ph.D. students have gone on to faculty positions. In addition, he has supervised a Master's student and undergraduate students participating in the undergraduate research opportunities program, the Sarah Jessica Parker Fellowship program, and the international research experience for undergraduates program.

Research: Professor Hunt has an internationally respected research program. His research focuses on two major areas: 1) the study of sub-cellular component mechanics at the nanoscale, and 2) the development of instrumentation, including femtosecond laser ablation and protein patterning to study nanoscale mechanics. Professor Hunt's lab excels at this challenging and detailed work. He is particularly well known for his research on microtubule dynamics during mitosis, but he has also done impressive work in other areas, such as low-cost rapid medical diagnostics devices. Professor Hunt has published more than 39 peer-reviewed articles in a selection of very high impact journals, including *Nature*, *Proceedings of the National Academy of Sciences*, *Nano Letters*, *Current Biology* and *Biophysical Journal*.

As further evidence of Professor Hunt's research impact, he has given over 25 invited presentations. Professor Hunt has a solid record of external funding, having had a CAREER award from NSF, and an NIH R21 award. His research is currently supported by an NIH R01 and a Coulter award. Professor

Hunt's research has also led to the spin-off of two companies, one in the area of femtosecond laser applications and the other in nanoprinting of proteins for medical diagnostics.

#### Recent and Significant Publications:

- K.E., K., Cheng, J. and Hunt, A.J. (2009), "The Distribution of Polar Ejection Forces Determines the Amplitude of Chromosome Directional Instability," *Current Biology*, 19(10): 807-815.
- Cheng, J., Türkel, N., Hemati, N., Fuller, M.T., Hunt, A.J. and Yamashita, Y.M. (2008) "Centrosome misorientation reduces stem cell division during ageing," *Nature*, 456(7222):599-604.
- Herbstman, J.F., Yalisove, S.M. and Hunt, A.J. (2008) "Morphologies and nonlinear scaling of laser damage on glass surfaces by tightly focused femtosecond pulses," *Applied Physics Letters*, 93:011112.
- Kudryashov, S.I., Mourou, G., Joglekar, A., Herbstman, J.F. and Hunt, A.J. (2007) "Nanochannels fabricated by high-intensity femtosecond laser pulses on dielectric surfaces," *Applied Physics Letters*, 91:141111.
- Schek, III, H.T., Gardner, M.K., Cheng, J., Odde, D.J. and Hunt, A.J. (2007) "Microtubule Assembly Dynamics at the Nanoscale," *Current Biology*, 17:1445-1455.
- Lee, S., Bull, J.L. and Hunt, A.J. (2007) "Acoustic phenomena during femtosecond laser machining," *Applied Physics Letters*, 91:23111.
- Brouhard, G.J. and Hunt, A.J. (2005) "Microtubule Movements on the Arms of Mitotic Chromosomes: Polar Ejection Forces Quantified *In Vitro*," *Proceedings of the National Academy of Science*, 102(16):13903-13908.

Service: Professor Hunt has performed a great deal of service at the University and for professional societies. He has been a long standing member of the biomedical engineering undergraduate education committee and the College of Engineering's curriculum committee. He has also served on numerous other departmental, College and University committees. He serves on the editorial boards of *Molecular & Cellular Biomechanics* and *Cellular & Molecular Bioengineering* and regularly reviews articles for a diverse set of professional publications. He has chaired an NIH study section in addition to serving on other grant review committees.

#### External Reviewers:

Reviewer A: "There is no question in my mind that Dr. Alan Hunt's achievements, including his noteworthy contributions to the understanding of chromosome and microtubule dynamics during mitosis, merit his promotion to Full Professor of Biomedical Engineering with tenure..."

Reviewer B: "This is characteristic of Alan's work: deep and thorough. He also chooses problems well. The assembly process of microtubules is fundamental, while at the same time it is a problem that lends itself to quantitative advances with biophysical tools, in which Alan is so strong, both in development and application. ... If Alan were to be considered for a similar promotion to full professor at my university, he would certainly be promoted."

Reviewer C: "...Alan has made multiple biophysical and cell biological contributions to the microtubule, microtubule motor and mitosis fields in part through technological advances in instrumentation, development of mechanistic computer simulations and novel cell biological experiments. ... Alan[,] I believe has achieved the level of international scientific distinction, extramural funding, training and publication record that supports promotion to Full Professor [at my institution]."

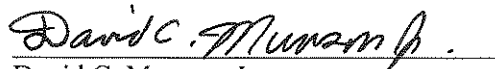
Reviewer D: "Alan's specialty ha[s] always been challenging and technically very difficult experiments, leading quantitative and precise results on the dynamics of biological macromolecules. There are only a handful of labs around the world that dare to tackle problems such as the microscopic functioning of the

mitotic spindle in cell division. ... He is recognized worldwide as one of the specialists in microtubule dynamics and his results are widely regarded as some of the most reliable and accurate around. Accordingly, he is invited to conferences and gives very well received presentations.”

Reviewer E: “Dr. Hunt is a leading scientist in the area of the biophysics of motility, a critically important topic for basic biology and biomedical research...He seems to be well funded with a very active laboratory that is producing some of the best trained and potentially best [junior] scientists working in this area. ...I have no hesitation in recommending Dr. Alan Hunt for promotion to Professor with tenure at the University of Michigan.”

Reviewer F: “The work that you sent me seems particularly creative and innovative, with the results of Prof. Hunt’s experiments leading to a much deeper understanding of the biophysical properties of several rather distinct systems. ... You have an excellent colleague, and you surely should ensure that this continues. I strongly support this promotion.”

Summary of Recommendation: Professor Hunt’s research is of the highest quality. He is a dedicated teacher and mentor. Professor Hunt has been active in service to his department, the university and his profession. It is with the support of the College of Engineering Executive Committee that I recommend Alan J. Hunt for promotion to professor of biomedical engineering, with tenure, Department of Biomedical Engineering, College of Engineering.



David C. Munson, Jr.  
Robert J. Vlasic Dean of Engineering  
College of Engineering

May 2010