

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

Approved by the Regents  
May 15, 2008

Almantas Galvanauskas, associate professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees

Ph.D.	1992	Royal Institute of Technology, Physics, Stockholm, Sweden
Diploma	1986	Vilnius University, Physics, Vilnius, Lithuania

Professional Record

2002-present	Associate Professor (without tenure), Department of Electrical Engineering and Computer Science, University of Michigan
2000-2001	Group Leader, IMRA America, Inc., Ann Arbor, MI
1994-2000	Research Scientist, IMRA America, Inc., Ann Arbor, MI
1993-1994	Postdoctoral Researcher, IMRA America, Inc., Ann Arbor, MI
1992-1993	Staff Researcher, Institute of Optical Research, Stockholm, MI

Summary of Evaluation:

Teaching: Professor Galvanauskas has made important contributions to both graduate and undergraduate education. Three Ph.D. students have graduated under his supervision, and two more are expected to graduate in 2008. He is a conscientious mentor who challenges an active group of graduate students and postdocs (his group currently has four Ph.D. students and three postdocs). Professor Galvanauskas has also been a conscientious and dedicated teacher in the classroom. He has introduced (and taught twice) a new special topics course for graduate students on Photonic Crystals, which brings to the classroom some of the most important and exciting developments in the field of optics today, and which is a subject of importance not only for Optics students, but also students in other fields including semiconductor optoelectronics, materials science, chemical engineering, and physics. In undergraduate education, he has recently devoted a significant effort to revamping and updating the advanced undergraduate optics curriculum. He restructured the senior advanced optics laboratory course (EECS 438), which includes the senior engineering Major Design Experience, and significantly updated the material taught in 334, Principles of Optics.

Research: Professor Galvanauskas is recognized as one of the leading researchers in the world in the area of high power fiber lasers. Before coming to Michigan, he had already established a reputation as a leader and innovator in ultrafast (femtosecond) fiber amplifiers at IMRA America, Inc. He joined the Center for Ultrafast Optical Science in January 2002 with the goal of establishing Michigan as the primary US center for research in the key frontier area of high power ultrafast fiber lasers. He has been responsible for a number of breakthroughs both in high-power fiber-laser technology and in their application. He has invented a new optical fiber, the *chirally* coupled core fiber, which has received a great deal of attention as it promises to solve one of the outstanding problems in high power fibers (namely single-mode operation at high power). He has demonstrated record average and peak power from fiber amplifiers. He has pioneered new applications to extreme-ultraviolet and x-ray generation, which will have a tremendous range of applications from imaging to semiconductor lithography. His

research activities appear very well positioned to continue his success for years to come. Professor Galvanauskas has a very strong publication record, with 18 journal articles since coming to Michigan, and 37 prior to that; most are published in the highest-impact journals in the field. His papers are very well cited (averaging 100 citations per year over the past three years). His h-index is 16 (at least 16 papers with at least 16 citations each); these numbers indicate his work is having a major impact. He has also established a new start-up company, Arbor Photonics, to commercialize high-power fiber technology.

#### Recent and Significant Publications:

- K. -H. Liao, A. G. Mordovanakis, B. Hou, G. Chang, M. Rever, G. Mourou, J. Nees, and A. Galvanauskas, "Generation of hard X-rays using an ultrafast fiber laser system," *Optics Express*, 15, pp. 13942-13948 (2007).
- A. Galvanauskas, M. -Y. Cheng, K. -C Hou, and K. -H Liao, "High peak power pulse amplification in large core Yb-doped fiber amplifiers," Invited Paper, *IEEE JSTQE Special Issue on the Progress in Solid-State, Fiber, and Tunable Sources*, 13 (No3), pp.559 - 566 (2007).
- K. -H. Liao, M. -Y. Cheng, E. Flecher, V. I. Smirnov, L. B. Glebov, and A. Galvanauskas, "Large-aperture chirped volume Bragg grating based fiber CPA system," *Optics Express*, 15, pp. 4876-4882 (2007).
- A. G. Mordovanakis, K. -C. Hou, Y. -C. Chang, M. -Y. Cheng, J. Nees, B. Hou, A. Maksimchuk, G. Mourou, and A. Galvanauskas, "Demonstration of fiber-laser-produced plasma source and applications to efficient extreme UV light generation," *Optics Letters*, 31, pp. 2517-2519 (2006).
- C. -H. Liu, A. Galvanauskas, V. Khitrov, B. Samson, U. Manyam, K. Tankala, D. Machewirth and S. Heinemann, "High power single-polarization and single-transverse-mode fiber laser with an all-fiber cavity and fiber-grating stabilized spectrum," *Optics Letters*, Vol. 31 (1), pp. 17-19 (2006).

Service: Professor Galvanauskas has served the EECS Department on several committees including the Department and ECE Division Curriculum Committees, where he spearheaded a restructuring of the undergraduate optics curriculum last year. He has served the wider optics community primarily through his participation in program committees for a number of international conferences. He has also served as guest editor for the *Journal of Special Topics on Optics and Quantum Electronics* and as an NSF panel reviewer.

#### External Reviewers:

Reviewer A: "I rank Almantas among the top half dozen scientists in the world in high power fiber lasers and applications of fiber lasers. ... His ideas are timely, often novel, a highlight at professional meetings."

Reviewer B: "Dr. Galvanauskas is widely known for his seminal contributions to the development of high-power and high-energy ultrafast fiber laser sources. ...he has succeeded in building a vibrant research activity at Ann Arbor."

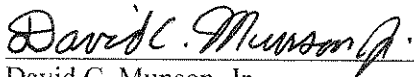
Reviewer C: "He is an outstanding scientist/engineer – currently the top US university researcher in the area of high power fiber optic technology. His work has been very innovative, insightful and influential. The case for tenure seems a no-brainer. It seems to me that you should simply promote him directly to full professor. It would be well justified."

Reviewer D: "I believe that Prof. Galvanauskas' most significant contribution however is his concept and demonstration of Chirally Coupled Core fibers. When I first heard of his solution I was astounded. I still feel that this work was a startlingly original and non-obvious solution to a fundamental problem with fiber lasers."

Reviewer E: "Almantas Galvanauskas's [sic] [work] is original, has a pioneering character, and is positioned in the far front of ultrafast laser science. ... I am delighted to reaffirm that Almantas Galvanauskas's [sic] credentials as a respected scholar and researcher, mentor to students and [junior] scientists, and group leader are most worthy of an appointment as a Full Professor."

Reviewer F: "Galvanauskas and co-workers inspired the short-pulse community by work that suggested the potential of fiber-based systems to compete with solid-state lasers and amplifiers. ... Prof. Galvanauskas is certainly one of the leaders in the area of short-pulse fiber lasers."

Summary of Recommendation: Professor Galvanauskas is an internationally recognized leader in high power and ultrafast fiber lasers, and has established a vigorous and productive research effort at Michigan. He has made important contributions to both undergraduate and graduate education, and contributes to both internal and external service. It is with the support of the College of Engineering Executive Committee that I recommend Almantas Galvanauskas for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.



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

May 2008