Approved by the Regents
May 14, 2009

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Steven M. Yalisove, associate professor of materials science and engineering, with tenure, Department of Materials Science and Engineering, College of Engineering, is recommended for promotion to professor of materials science and engineering, with tenure, Department of Materials Science and Engineering, College of Engineering.

Academic Degrees:

Ph.D.	1986	University of Pennsylvania, Materials Science and Engineering, Philadelphia, PA
M.S.	1979	University of Rochester, Mechanical and Aerospace Sciences, Rochester, NY
B.A.	1977	University of Rochester, Mathematics, Rochester, NY

Professional Record:

1995-present	Associate Professor, (with tenure), Department of Materials Science and Engineering, University of Michigan
1989-1995	Assistant Professor, Department of Materials Science and Engineering, University of Michigan
1987-1989	Postdoctoral Member of Technical Staff, AT&T Bell Laboratories, Murray Hill, NJ
1981-1987	Teaching Assistant, Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA
1981-1986	Research Fellow, Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA
1980-1982	Consulting Aerothermodynamics Engineer, General Electric, Philadelphia, PA
1979-1980	Aerothermodynamics Engineer, General Electric, Philadelphia, PA
1977-1979	Research Fellow, Mechanical and Aerospace Sciences, University of Rochester, Rochester, NY

Summary of Evaluation:

Teaching: Professor Yalisove has shown exceptional dedication to undergraduate education. He has been innovative in introducing new learning methodologies and instructional technology to large undergraduate courses in Materials Science and Engineering. He has developed a number of upper level undergraduate and graduate courses and is known as an enthusiastic lecturer, recognized twice with departmental teaching awards. His dedication to the educational mission in Materials Science and Engineering is evident from the fact that he has voluntarily served on the undergraduate curriculum for 19 years. Throughout his career, Professor Yalisove has taken advantage of the support the University of Michigan offers through the Center for Research on Learning and Teaching (CRLT). He has received several CRLT grants to further improve his teaching.

Professor Yalisove has graduated 10 Ph.D. students and four M.S. students, with additional Ph.D. students in progress. He has actively published with his graduate students and is a dedicated mentor. In addition, his commitment to undergraduate research is exceptional; he has supervised 24 undergraduate research projects in his laboratory.

Research: Professor Yalisove is an internationally renowned researcher in the areas of thin films for microelectronic systems and femtosecond laser–material interactions. Thin films were the major emphasis of his research during his first thirteen years at Michigan and his contributions to the understanding of texture development, stresses and the formation of silicides at metal–silicon interfaces are recognized as outstanding.

Professor Yalisove is known as a creative and highly flexible researcher and in recent years this has led him to establish a new field known as Ultrafast Materials Science. His recognition of the new opportunities at the interdisciplinary boundaries between Ultrafast Lasers and Materials Science has led to new research programs and highly effective collaborations between the Materials Science and Engineering Department and the Center for Ultrafast Optical Science. His highly original work in this area has led to new materials processing techniques as well as to new materials diagnostic methods. His research productivity in this area has been outstanding, with eight archival journal publications appearing in 2008. Professor Yalisove's research has been supported by a number of diverse sources, including the National Science Foundation, DARPA, Army Research Office, Air Force Office of Scientific Research, Sandia National Laboratory and Lawrence Livermore National Laboratory.

Recent and Significant Publications:

Y. Picard and S. Yalisove, "Femtosecond Laser Heat Affected Zones Profiled in Co/Si Multilayer Thin Films," *Applied Physics Letters*, 92(1), (2008)

J.P. Mcdonald, D.K. Das, J.A. Nees, T.M. Pollock, and S.M. Yalisove, "Approaching Non-Destructive Surface Chemical Analysis of CMSX-4 Superalloy With Dual-Pulsed Laser Induced Breakdown Spectroscopy," *Spectrochimica Acta Part B,* 63(5), 561 (2008)

J.P. Mcdonald, S. Ma, J.A. Nees, T.M. Pollock, and S.M. Yalisove, "Femtosecond Pulsed Laser Ablation Dynamics and Ablation Morphology of Nickel Based Superalloy CMSX-4," *Journal of Applied Physics* 103, 093111 (2008)

J. Mcdonald, A. McClelland, Y. Picard, and S. Yalisove, "Role of a Native Oxide on Femtosecond Laser Interaction with Silicon (100) Near the Damage Threshold," *Applied Physics Letters*, 86(26), (2005)

D. Adams, S. Yalisove, and D. Eaglesham, "Effect of Hydrogen on Surface Roughening During Si Homoepitaxial Growth," *Applied Physics Letters*, 63(26), 3571 (1993)

Service: Professor Yalisove has an outstanding record of service to the Materials Science and Engineering Department, College of Engineering and the materials profession. He has provided outstanding leadership in the area of engineering educational accreditation (ABET) for the MSE Department and the College of Engineering. More recently he has taken on a major national role as a program evaluator. Professor Yalisove has served on the MSE undergraduate curriculum committee for 19 years, serving as chair of the undergraduate committee from 1999 to 2003. He has also served on a number of College of Engineering curriculum committees. Professor Yalisove has been very active in the Materials Research Society, serving on multiple administrative and technical committees, including membership on the MRS Bulletin editorial board.

External Reviewers:

Reviewer A: "Steve is an energetic scientist, driven by creative ideas, whose good experimental work makes an important impact in the field of thin films. His work is of high quality, and the quantity is appropriate for someone at this career stage."

Reviewer B: "Together these bodies of work define an intellectual record that I find highly impressive: diverse enough to demonstrate intellectual flexibility and excellence across a broad spectrum of materials research, yet concentrated enough in number to enable substantial impact to be made in each area."

Reviewer C: "Steve is a dedicated and enthusiastic scientist who can find the right problem and deliver the goods."

Reviewer D: "His recent work focuses on femtosecond laser ablation .... I think this is an exciting area, representing the frontier... of laser-materials interactions."

Reviewer E: "Professor Yalisove's research contributions and impacts, and his professional reputation, equal or exceed those of many full professors at top materials departments."

Reviewer F: "Beyond his research I have been aware of Steve's drive to develop interactive teaching tools for introductory materials courses. His efforts to engage students in large lectures are clear signs of his strong desire to educate students."

Summary of Recommendation: Professor Yalisove is an innovative researcher who has had very high impact on the fields of thin films and ultrafast laser–material interactions. He is highly dedicated to undergraduate education, and has devoted a great deal of energy to development of curriculum, learning techniques and evaluation approaches. It is with the support of the College of Engineering Executive Committee that I recommend Steven M. Yalisove for promotion to professor of materials science and engineering, with tenure, Department of Materials Science and Engineering, College of Engineering.

David C. Munson Jr.

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

May 2009