THE UNIVERSITY OF MICHIGAN
REGENTS COMMUNICATION

PROMOTION RECOMMENDATION

University of Michigan-Flint
College of Arts and Sciences
Department of Computer Science, Engineering Science and Physics

Mojtaba Vaziri, associate professor of physics, with tenure, Department of Computer Science, Engineering Science and Physics, College of Arts and Sciences, is recommended for promotion to professor of physics, with tenure, Department of Computer Science, Engineering Science and Physics, College of Arts and Sciences.

Academic Degrees:

Ph.D.	1985	Purdue University
M.S.	1982	Purdue University
B.S.	1973	Tarbiyat Moallem University, Tehran, Iran

Professional Record:

1995 to present	Associate Professor of Physics, with tenure, University of Michigan-Flint
2000 to 2005	Chair, Department of Computer Science, Engineering Science, and Physics, University of Michigan-Flint
1997 to 2000	Chair, Department of Physics and Engineering Science, University of Michigan-Flint
1990 to 1995	Assistant Professor of Physics, University of Michigan-Flint
1986 to 1990	Visiting Assistant Professor, School of Electrical Engineering, Purdue University
1985 to 1986	Research Associate, Department of Chemistry, University of Illinois at Chicago
1982 to 1985	Graduate Research Assistant, Physics Department, Purdue University
1979 to 1982	Graduate Teaching Assistant, Physics Department, Purdue University
1975 to 1979	Instructor, Department of Physics, Razi University

Summary of Evaluation:

Teaching – Dr. Vaziri is an outstanding teacher of a difficult subject. He earns consistently high and enthusiastic teaching evaluations, involves students in research projects, and continually develops and revises his course materials. He is a tireless advisor and mentor to students. His peers note his concern and respect for students, his enthusiasm for physics and science, and his development of materials, experiences, and varied strategies for students to engage with and truly learn the material.

Research – In spite of a heavy teaching load and significant service responsibilities, Dr. Vaziri has continued an active research program that bears regular fruit. Dr. Vaziri assembled a solid state research laboratory and launched a research program centered on the production and characterization of fullerenes and nanometer scale metal clusters encapsulated within carbon cages. Results have already appeared in refereed journals; additional work is in progress and should result in further publications in future years. Dr. Vaziri also successfully involves undergraduate students in his research.

Recent and Significant Publications:

Vaziri, M. "Synthesis of Small Carbon-Nitride Heterofullerenes." Accepted for publication in *Materials Letters.*

Song, Jie and Vaziri, M. "A Study On Electronic and Structural Properties of C_{28} and $C_{16}N_{12}$." Accepted for publication in *Molecular Physics.*

Vaziri, M. "Arc-Discharge Evaporation of Silver-Plated Graphite Rods." *Materials Research Society Symposium Proceedings,* Vol. 858, 2005 Materials Research Society.

Vaziri, M. "Low Temperature Conductivity of Epitaxial ZnSe In the Impurity Band Regime." *Applied Physics Letters,* 65 (20), 2568 (94).

Piskoti, C., Mykolajenko, B. and Vaziri, M. "Study of Ohmic Contacts On P-Type ZnSe and ZnTe Epitaxial Layers Grown By Molecular Beam Epitaxy." *Materials Research Society Symposium Proceedings,* Vol. 281., 727 (1992).

Vaziri, M. and Reifenberger, R. "Electron Mobility In n-type Epitaxial ZnSe." *Materials Research Society Symposium Proceedings,* Vol. 216, 421 (1991).

Ramachandera, R., Vaziri, M., and Andres, R. P. "Production of Ultra-Thin Metal Films Using Neutral Cluster Beams." *Materials Research Society Symposium Proceedings,* Vol. 206, 397 (1991).

Mathine, D. L., Han, J., Kobayashi, M. Gunshor, R. L., Menke, D. R., Vaziri, M., Gonsalves, J., Otsuka, N., Fu, Q., Hagerott, M. and Nurmikko, A. V. "Pseudomorphic ZnTe/AlSb/GAsb: Growth and Characterization." *Materials Research Society Symposium Proceedings,* Vol. 161, 121 (1990).

Razavi, A., Bobyak, L., Vaziri, M. "The Effects of Biasing and Annealing On the Electrical and Optical Properties of RF Sputtered VO_2." Proceedings of 36th National Symposium of American Vacuum Society, 1989.

Vaziri, M., Reifenberger, R., Gunshor, R. L., Kolodziejski, L. A., Venkatesan, S. and Pierret, R. F. "Electrical and Optical Characterization of MBE Grown Ga-doped ZnSe." *Journal of Vacuum Science & Technology,* B7(2), 253, Mar/Apr 1989.

Carlin, R. L., Vaziri, M. and Sinn, E. "Magnetochemistry At Low Temperatures: Crystal Structure and Magnetic Susceptibility of $[CoCl_2(3,5\text{-Lutidine})_2]$." *Journal of Magnetism and Magnetic Materials,* 75, 185 (1988).

Carlin, R. L., Vaziri, M., Benelli, C. and Gatteshi, D. "Long-Range Magnetic Order In a GdCu2 Cluster With a Ground S= 9/2 State." *Solid State Communications,* 66, 79 (1988).

Gunshor, R. L., Kolodziejski, L. A., Melloch, M. R., Vaziri, M., Choi, C. and Otsuka, N. "Nucleation and Characterization of Pseudomorphic ZnSe Grown on Molecular Beam Epitaxial Grown GaAs Epilayers." *Applied Physics Letters,* 50, 200 (1987).

Kolodziejski L. A., Gunshor, R. L., Melloch, M. R., Vaziri, M., Choi, C. and Otsuka, N. "MBE of ZnSe On GaAs Epilayers." *The International Society for Optical Engineering, SPIE, Proceedings,* Vol. 796, 98 (1987).

Vaziri, M. and Reifenberger, R. "Angular Dependence of the Quantum Oscillations In Diluted Magnetic Semiconductor of $Hg_{1-x}Fe_xSe$." *Physical Review B,* B33, 5585 (1986).

Wall, A., Caprile, C., Franciosi, A., Vaziri, M., Reifenberger, R. and Furdyna, J. K. "Bonding and Stability In Narrow-Gap Ternary Semiconductors For Infrared Applications." *Journal of Vacuum Science & Technology,* A4, 2010 (1986).

Vaziri, M., Debska, U. and Reifenberger, R. "Effect of Fe On the Carrier Instability In HgSe." *Applied Physics Letters,* 47, 407 (1985).

Service – It would be difficult to find a faculty colleague more engaged in the life of his department and College than Dr. Vaziri. He served as chair of his department for eight years, including a critical period when the unit was reorganized and significant new hirings were undertaken. His efforts have led to program development, including a new masters program for the College. He has served or serves on the Council of Chairs, Faculty Council, the Academic Council, and the College's Executive Committee. The quality of his service is outstanding.

External Reviewers:

Reviewer (A)
"The theoretical results by Song and Vaziri provide a valuable point of comparison to the experimental work and indicate directions for future experimental work. I do hope Mojtabe continues with his fullerene research; it is his best work."

Reviewer (B)
"I am very impressed by Dr. Vaziri's establishment of Solid State Research Facility at UM-Flint. It is admirable that a homemade arc-discharge chamber for preparation of fullerenes and carbon nanotubes has been set up, and several peer reviewed publications have resulted based on the studies using this equipment."

Reviewer (C)
[Dr. Vaziri's] "publications were in very high quality research journals, such as, *Phys Rev., Appl. Phy. Letters, Solid State Communications, Surface Science,* and *Phys. Rev Letters.* It is difficult yet very prestigious to publish in these journals largely because the review process of these journals is very rigorous (generally ¾ reviewers)."

Reviewer (D)
"He has taken care to design his research program to be suitable for undergraduate students. In general, research in Condenses Matter Physics topics requires a background that is usually higher than the undergraduate level. Therefore, it takes a large amount of time, effort, and thought on the mentor's part to make his/her research accessible to undergrads."

Reviewer (E)
"Professor Vaziri has made tremendous efforts to establish a solid-state research facility, which contributes evidently to his own and his peer faculties' research." "... By using his own established facility, Prof. Vaziri has prepared and characterized the nanosized encapsulated silver crystals and silver clusters, and carbon nanotubes, fullerenes, and small carbon-nitride heterofullerenes by further adjusting the experimental conditions."

Summary of Recommendation:
Dr. Vaziri evidences consistent excellence as a teacher. His research has contributed to solid state physics, has involved undergraduates in a facility he assembled on campus and is likely to bear further fruit in the future. His university service exceeds expectations for promotion. Dr. Vaziri's service and leadership as chair in a time of growth and change has proven him a stellar colleague. He is the model of what a professor should be. We therefore enthusiastically recommend Mojtaba Vaziri to the title of professor of physics, with tenure, Department of Computer Science, Engineering Science and Physics, College of Arts and Sciences.

D. J. Trela, Ph.D., Dean
College of Arts and Sciences

Recommendation endorsed by:

Jack Kay, Ph.D., Provost and
Vice Chancellor for Academic Affairs

Juan E. Mestas, Ph.D., Chancellor
University of Michigan-Flint

May 2006