

PROMOTION RECOMMENDATION  
The University of Michigan  
College of Literature, Science, and the Arts

Çagliyan Kurdak, associate professor of physics, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of physics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	1995	Electrical Engineering, Princeton University
B.S.	1988	Electrical Engineering, Middle East Technical University

Professional Record:

2010 – present	Director, Applied Physics Program, University of Michigan
2007 – 2010	Associate Chair, Graduate Program, Department of Physics, University of Michigan
2004 – present	Associate Professor, Department of Physics, University of Michigan
2006	Visiting Faculty, Department of Electrical Engineering, Virginia Commonwealth University
1998 – 2004	Assistant Professor, Department of Physics, University of Michigan
1995 – 1998	Post-doctoral Researcher, University of California, Berkeley

Summary of Evaluation:

Teaching – Professor Kurdak has a strong teaching record. He often carries significant teaching loads in the large introductory classes. Student evaluations are very favorable and comments clearly convey their appreciation of his teaching abilities. At the graduate level, his 600-level course brings students to the cutting edge of optoelectronics and regularly garners superb reviews.

Research – Professor Kurdak has established a world-class experimental laboratory for the study of the electrical properties of low-dimensional electron systems. His unique synthesis of fundamental quantum phenomena and applications is spawning new and exciting technological possibilities that were not previously accessible. His research on the physics of quantum devices provides an important interdisciplinary bridge between Physics and Electrical Engineering at Michigan, and this has underpinned much of his work in applied physics over the past few years. Six doctoral students have graduated from Professor Kurdak's research group and placed into positions in industry and academia. His funding record is strong and he publishes in the top journals in his field.

Recent and Significant Publications:

“[N] dependence of electron effective mass in GaAsN,” with T. Dannecker, et al., *Physical Review B*, 82, 2010, p. 125203.

“Densely integrated array of chemiresistor vapor sensors with electron-beam patterned monolayer-protected gold nanoparticle interface films,” with E. Covington, et al., *Lab on a Chip*, 10, 2010, p. 3058.

“Influence of Si-N complexes on the electronic properties of GaAsN alloys,” with Y. Jin, et al., *Applied Physics Letters*, 95, 2009, p. 092109.

“Weak antilocalization and zero-field electron spin splitting in AlGaN/AlN/GaN heterostructures with a polarization induced two-dimensional electron gas,” with N. Biyikli, et al., *Physical Review B*, 74, 2006, p. 113308.

Service – Professor Kurdak has an outstanding record of service. In the past several years, he has put much energy into a variety of efforts to improve the educational environment in physics and applied physics. A noteworthy achievement has been the establishment of the Applied Physics Imes-Moore Fellows Program, which seeks to increase the participation of under-represented students in doctoral studies. In conjunction with the American Institute of Physics, he developed a new teaching program in applied physics for undergraduates, and he continues to be involved in outreach to high school students.

External Reviews:

Reviewer (A)

“I believe that the candidate’s accomplishments are strong... Prof. Kurdak made a number of important contributions to the discipline. ...I support the proposed promotion...”

Reviewer (B)

“Two strengths that stand out most when I read Prof. Kurdak’s file are: 1) the breadth and interdisciplinary nature of his current research endeavors; and 2) his intense dedication to teaching and outreach.”

Reviewer (C)

“...Kurdak is a profound scientist who looks for a complete and deep understanding of physical phenomena rather than running after fashion. ... He has also already demonstrated qualities of strong scientific leadership and his ability to start new promising subject. His scientific contributions are numerous and of good quality. I strongly support his promotion...”

Reviewer (D)

“Professor Kurdak’s record is strong in the category of materials physics. ... Professor Kurdak’s most cited work is on the gold nanoparticles... His research is of sufficient quality to justify his promotion...”

Reviewer (E)

“I am quite confident that Dr. Kurdak will continue to perform first-rate research and teaching...I recommend him for this promotion...”

Reviewer (F)

“His work on nanoparticle clusters, including synthesis, physics, and chemical sensing is interesting. ... The work on spin-orbit coupling...particularly stands out.”

Reviewer (G)

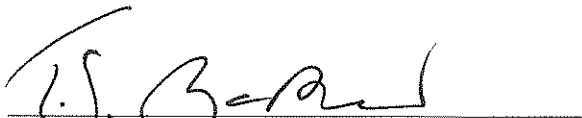
“I find Kurdak’s scholarly achievements to be very impressive... He appears to line up good collaborators... In short, Kurdak is a candidate that we would promote, at my own institution...”

Reviewer (H)

“Since tenure, Professor Kurdak has been productive and, I believe, influential, within the applied physics community. His experiments are well conceived and demonstrate the necessary mastery of a broad variety of solid-state physics techniques, with a keen focus on interesting materials. He is likely to continue to produce high-quality results suitable for guiding device development, with publication in journals like *Applied Physics Letters*. . .his training of students in the Applied Physics program and his dedication to outreach will also contribute in manifest ways...”

Summary of Recommendation:

Professor Kurdak has shown high intellectual quality, productivity, and leadership in creating and disseminating knowledge in physics. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Çağliyan Kurdak be promoted to the rank of professor of physics, with tenure, in the College of Literature, Science, and the Arts.



Terrence J. McDonald  
Arthur F. Thurnau Professor,  
Professor of History, and Dean,  
College of Literature, Science, and the Arts

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