

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Materials Science and Engineering

Alan I. Taub, professor of materials science and engineering, without tenure, Department of Materials Science, College of Engineering, is recommended for the granting of tenure to be held with his title of professor of materials science and engineering, Department of Materials Science and Engineering, College of Engineering [also professor of mechanical engineering, without tenure, Department of Mechanical Engineering, College of Engineering].

Academic Degrees:

Ph.D.	1979	Harvard University, Applied Physics, Cambridge, MA
M.S.	1977	Harvard University, Applied Physics, Cambridge, MA
B.S.	1976	Brown University, Materials Engineering, Providence, RI

Professional Record:

2016 – present	Professor (without tenure), Department of Mechanical Engineering, University of Michigan
2015 – present	Chief Technology Officer, Lightweight Innovations for Tomorrow (LIFT), American Lightweight Materials Manufacturing Institute (ALMMII), Detroit, MI
2012 – present	Professor (without tenure), Department of Materials Science and Engineering, University of Michigan
2009 – 2012	Vice President, Global Research & Development, General Motors, Warren, MI
2004 – 2009	Executive Director, Research & Development, General Motors, Warren, MI
2001 – 2004	Executive Director, Science Laboratories, General Motors, Warren, MI
2000 – 2001	Manager, Lincoln Vehicle Engineering, Ford Product Development, Dearborn, MI
1997 – 2000	Manager, Vehicle Crash Safety, Ford Product Development, Dearborn, MI
1995 – 1996	Senior Lecturer, Materials Science Department, Massachusetts Institute of Technology, Cambridge, MA
1993 – 1997	Manager, Materials Science, Ford Scientific Research Lab, Dearborn, MI
1989 – 1993	Manager, Materials Properties and Processes Laboratory, GE Corporate R&D, Schenectady, NY
1988 – 1989	Manager, Superconducting Materials Project, GE Corporate R&D, Schenectady, NY
1979 – 1988	Staff Manager, Materials Research, GE Corporate R&D, Schenectady, NY
1979	Post-doctoral Assistantship, Extended thesis work on flow and relaxation of amorphous Pd-base alloys, Harvard University, Cambridge, MA

Summary of Evaluation:

Teaching: Professor Taub's contributions to teaching cover all the essential areas expected of faculty at his rank. He has co-introduced a new course at the undergraduate level; supervised students, both graduate and undergraduate; and mentored post-doctoral fellows. Professor Taub's contributions to teaching, as well as mentoring of students, both graduate and undergraduate, together with mentoring of post-doctoral fellows, have been impressive. During his period at the university, a number of students have benefitted from his industrial expertise, as well as dedication and willingness to improve the students' classroom experience. Professor Taub has graduated one Ph.D. student and has another six in progress. He has also advised two Master's students, and is currently advising four more.

Research: Professor Taub indeed has an international reputation for his research, as evidenced by his major awards and his membership in the National Academy of Engineering for his development of innovative materials and automotive technologies. His scholarship has had important impact, not just the number of publications (although he has many over his career and is starting to publish his Michigan research), but more significantly in the scope and magnitude of his efforts as a technology leader. A pioneer in the field of amorphous metals, his early work on the dynamics of metallic glass has been widely recognized. Shortly after joining the University of Michigan, Professor Taub led the successful effort to establish a \$148 million public-private program for Lightweight Innovations for Tomorrow (LIFT), a comprehensive program for developing the supply chain for new lightweight materials in transportation, from fundamental integrated computational materials science to factory-level development of new manufacturing methods.

Recent and Significant Publications:

- M. Nath, J. Shin, A. Bansal, M. Banu, A. Taub, "Comparison of Texture and Surface Finish Evolution During Single Point Incremental Forming and Formability Testing of AA 7075," *Light Metals 2018, The Minerals, Metals & Materials Series*, 2018, accepted.
- W. A. Chapkin, J. K. Wenderott, A. I. Taub, "Length dependence of electrostatically induced carbon nanotube alignment," submitted to *Carbon*, 2017.
- E. Salem, J. Shin, M. Nath, M. Banu, A. I. Taub, "Investigation of Thickness Variation in Single Point Incremental Forming," *Procedia Manufacturing*, 5, 828-837, 2016.
- W. A. Chapkin, D. Q. McNerny, M. F. Aldridge, Y. He, W. Wang, J. Kieffer, A. I. Taub, "Real-time assessment of carbon nanotube alignment in a polymer matrix under an applied electric field via polarized Raman spectroscopy," *Polymer Testing*, 56, 29-35, 2016.
- A. I. Taub, A. A. Luo, "Advanced lightweight materials and manufacturing processes for automotive applications," *MRS Bulletin*, 40, 1045-1053, 2015.

Service: Professor Taub's record of service is extensive and reaches back decades. During his six years at Michigan, he has established himself as a strong contributor in service at the department and college level. What sets him apart is his external service. His commitment to service is evidenced by comments made in just about all of his external and internal letters. Professor Taub serves on advisory panels for some of the best universities in the nation, and plays a significant role in the National Academy of Engineering. He has also made many

contributions to diversity, equity, and inclusion. His efforts began decades ago when he used his leadership positions at Ford to initiate gender diversity programs, and at GM to help employees from different cultures work more effectively.

External Reviewers:

Reviewer A: “One of the common themes that comes across is that he introduces engineers to the very complex world of design, which includes more than just science and engineering, but requires an innate understanding of business, aesthetics and the environment. He challenges his collaborators and students to think outside the box of engineering, and then tie their ideas back to the basics. His approach is scientifically rigorous and challenging and yet he manages to convey its applicability across a wide range of disciplines (including non-engineering domains). He is respected and liked by his team members for the inspiration and intellectual excitement he infuses into them.”

Reviewer B: “... Prof. Taub is a highly distinguished, internationally renowned scholar and leader in the materials and manufacturing fields. He was an outstanding hire at UMich, who enabled the campus to establish a nationally unique manufacturing institute in the area of lightweight materials. Since arriving at UMich he has established a strong research effort in the manufacturing of polymer and metal lightweight structural materials. He has also established teaching and mentoring activities at a level that is in my experience fully commensurate with expectations of a tenured full Professor at a top Engineering program...”

Reviewer C: “... I think Alan will be an exceptionally strong addition to your tenured faculty, and he has my whole-hearted recommendation for this promotion. He would undoubtedly be granted tenure at [my institution], and we would be honored to have him as a tenured professor on our faculty.”

Reviewer D: “... Alan Taub belongs to a small and elite group of scientists who have both a deep appreciation and understanding of fundamental science and the ability to combine this with exceptional vision and leadership qualities. ... Alan’s professional track record places him far above the proverbial ‘bar’ for this promotion. Alan would, for instance, make a fantastic Dean of the Engineering School at UM.”

Reviewer E: “Alan’s achievements in the field of materials are well recognized by his peers, who in 2006 elected him to the National Academy of Engineering ‘For contributions to the development of innovative electrical materials and automotive technologies, and leadership in the globalization of automotive research.’”

Reviewer F: “There is no question at all that his presence at UM and leading LIFT (the national manufacturing program on lightweighting) have raised the profile of the University. He has received many invitations to deliver keynote lectures and to sit on high-profile panels—and his leadership has been recognized with awards from organizations worldwide.”

Reviewer G: “It is clear that Professor Taub has been able to make the transition from industry to academe with great success. ... In addition to these successes in the past few years, he was instrumental in bringing the LIFT Institute to Michigan. Given his experience in industry, he is

the ideal person to be the technical lead of the center, and to further build bridges between the institute and the university.”

Summary of Recommendation: Professor Taub is a very prominent research leader, a member of the National Academy of Engineering, and highly esteemed instructor, mentor, and community member. It is with the support of the College of Engineering Executive Committee that I recommend Alan I. Taub for the granting of tenure to be held with his title as professor of materials science and engineering, Department of Materials Science and Engineering, College of Engineering.



Alec D. Gallimore, Ph.D.
Robert J. Vlastic Dean of Engineering
College of Engineering

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