

Jeffrey S. Cross, Ph.D. Biosketch



Professor in Energy Science and Engineering, Departments of Transdisciplinary Science and Engineering, and Materials Science and Engineering, School of Environment and Society, **Tokyo Institute of Technology**

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Education

- 1988-1992 Ph.D., Major: Ch.E., Minor: Mater. Sci., Iowa State University, Ames, IA, USA
- 1986-1988 M.S., Ch.E., University of Arkansas, Fayetteville, AR, USA
- 1982-1986 B.S., Ch.E., Kansas State University, Manhattan, KS, USA (Honors program)

Employment History

- 2016-Now Tokyo Tech, Professor, Graduate Coordinator Energy Science and Engineering, Department of Transdisciplinary Science and Engineering and other dept.
- 2011-2016 Tokyo Tech, Prof. and Adjunct in 3 different graduate engineering dept.
- 2008-2016 Tokyo Tech, Professor, Dept. Engr. Fundamentals & Strategic Planning
- 2006-2008 Tokyo Tech, Visiting Professor, Ceramics Science
- 2002-2005 Tokyo Tech, Visiting Associate Professor, Ceramics Science
- 2002-2008 Fujitsu Lab Ltd., Senior Researcher, Atsugi, Japan
- 2002-2005 Tokyo Tech, Visiting Lecturer, Chem. Engr. Dept.
- 1996-2002 Fujitsu Lab Ltd., Staff Researcher, Atsugi, Japan
- 1994-1996 US-NSF CGP Postdoctoral Fellowship, Fujitsu Lab. Ltd., Atsugi, Japan
- 1994 Japan NIRIM-COE Postdoctoral Fellowship, NIRIM (now NIMS), Tsukuba, Japan
- 1993-1994 Japan STA US-NSF Postdoctoral Fellowship, NIRIM (now NIMS), Tsukuba, Japan

Research Topics

Japan Energy Policy, Biomass processing, Biofuels, Educational Technology, On-line (MOOC) course learning analytics, Engineering Education, University Student Competence/Efficacy

Teaching

Technical communications, scientific writing, learning management systems, online course video-making, introduction to chemical engineering and materials engineering.

International Student Exchange Activities and Service

Advisor to two Erasmus Mundus funded grants consisting of 12 EU-Japan-Korea universities ([EASED](#) 2013-17 & [BEAM](#) 2010-14), Steering Committee Chairman of [Asia-Oceania Top University League](#) in [Engineering \(AOTULE\)](#) from 2011-2015, participates in multiple Japan Society for the Science (JSPS) funded education programs ([AGL](#) & [ACEEES](#)), Co-chair Tokyo Tech Summer Program committee and general manager online education development office ([OEDO](#)), UK-Japan Engineering Education League secretariat ([UKJEEL](#))

Journal Reviewing and Expertise

- Journal manuscript reviewer for materials, semiconductor devices and applied physics: Appl. Phys. Letter, J. Appl. Phys., Mater. Res. Soc. J., Integ. Ferroelectrics, Japan J. Appl. Phys., Mater. Sci. B, J. Appl. Ceramics Technology and Materials Letters

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- Jeffrey is a hands-on educator, researcher and project manager with 25 years of experience in industry, academia and at a national laboratory in Japan. He relishes working with students and faculty on educational research projects, and developing online courses.
- Native speaker of American English and somewhat fluent in Japanese

Awards	2015	Japan Univ. ICT Advancement Society (AXIES) Best Paper Award
	2013	Tokyo Institute of Technology Teacher of the Year Award
	2013	Tokyo Institute of Technology School of Engineering Teacher of Year Award
	2004	Fujitsu Lab Ltd., Outstanding Patent Award
	2004	Japan Ceramic Society, Outstanding Paper and Technology Award

Recent publications

- (1) Influence of Safety Risk Perception on Post-Fukushima Generation Mix and its Policy Implications in Japan, A. Iimura and J.S. Cross, *Asia & the Pacific Policy Studies*, (2016), **3**: 518–532. doi: 10.1002/app5.151.
- (2) A study of guaiacol, cellulose, and Hinoki wood pyrolysis with silica, ZrO₂ & TiO₂ and ZSM-5 catalysts, M Behrens, JS Cross, H Akasaka, N Ohtake, *Journal of Analytical and Applied Pyrolysis* 125, 178-184, (2017).
- (3) Theoretical and experimental determination of the crystal structures of cesium–molybdenum chloride, N. Saito, et al., J.S. Cross, *Japan J. Appl. Phys.*, 55, 7, (2016).
- (4) Energy Science and Engineering Graduate Education at Tokyo Tech, J.S. Cross et al, 2017 ASEE Conf. Proceedings Paper ID #19042 (2017).
- (5) [Development of a Mechanical Engineering Test Item Bank to promote learning outcomes-based education in Japanese and Indonesian higher education institutions](#), J.S. Cross et al, *Tuning J. Higher Edu.* Vol. 5 2017

Most cited publications

- (1) Electrochemistry at Chemically Modified Graphenes, A. Ambrosi, A. Bonanni, Z. Sofer, J. S. Cross, and M. Pumera, *Chemistry - A European Journal*, **17**, 10763-70 (2011). **ISI Citations: 204**
- (2) Non-Kolmogorov-Avrami switching kinetics in ferroelectric thin films, A. K. Tagantsev, I. Stolichnov, N. Setter, J. S. Cross, and M. Tsukada, *Phys. Rev. B* **66**, 214109 (2002). **ISI Citations: 240**

Memberships

Materials Research Society, Japan Ceramic Society, Japan Applied Physics Society, American Society for Engineering Education, and Japan Society of Energy and Resources

Book and Book Chapters

- (1) Tagaya M, Scott CJ, Ikoma T, Tanaka J. Application of a Quartz Crystal Microbalance with Dissipation for In Situ Monitoring of Interfacial Phenomena between Bioceramics and Cells. In: *Handbook of Advanced Ceramics: Materials, Applications, Processing, and Properties*. Academic Press: Elsevier Inc.; 2013. p. 557–75.
- (2) *Advanced Ceramic Technologies & Products*, Ed. Ceramic Society of Japan, Springer, 585 p., 2012.
- (3) *Embedded Memory for Nano-Scale VLSI*, Ed. K. Zhang, Chapter 8: FeRAM, S. Kawashima and J.S. Cross, Springer USA, 2009.