

## Jeffrey S. Cross, Ph.D. Biosketch



Professor in Energy Science and Engineering, Departments of Transdisciplinary Science and Engineering, School of Environment and Society; Materials Science and Engineering, School of Materials and Chemical Technology; General Manager Online Education Development Office, Center for Innovative Teaching and Learning

### 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, Department of Transdisciplinary Science and Engineering, School of Environment and Society  
2014-Now Tokyo Tech, Founder and General Manager Online Education Development Office, Center for Innovative Teaching and Learning  
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

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., Japan J. Appl. Phys., Various Conference Proceedings

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- Jeffrey is a hands-on educator, researcher and project manager with over 25 years of experience in working in industry, academia and at a national laboratory in Japan. He relishes working closely with his students to develop their full capacity in his interdisciplinary lab and developing new technology.
- Native speaker of American English and somewhat fluent in Japanese

<b>Awards</b>	2019	IEEE Education Society Learning with MOOCs Conference Best Paper Award
	2018	Tokyo Institute of Technology Best Teacher Award (ACEEES)
	2018	Tokyo Institute of Technology Best Teacher Award (Online Courses)
	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 peer reviewed publications

- (1) Removing the Bottleneck on Wind Power Potential to Create Liquid Fuels from Locally Available Biomass, A Castro Garcia, S Cheng, JS Cross - *Energies*, 2021
- (2) Interfacial Modeling of Fibrinogen Adsorption onto LiNbO<sub>3</sub> Single Crystal–Single Domain Surfaces, JS Cross, Y Kubota, A Chatterjee, S Unni, T Ikoma, M Tagaya, *International Journal of Molecular Sciences* (2021) 22 (11), 5946
- (3) Improving MOOC quality using learning analytics tools, Jeffrey Scott Cross, May Kristine Jonson Carlon, Zarina Rakhimberdina, Nopphon Keerativoranan, Yong Hong Tan, Hideki Mori., IEEE Learning with MOOCs Conference Proceedings, Milwaukee, WI, USA Oct. 2019
- (4) Editorial: Challenges and International Opportunities with STEM based MOOC Development, J.S. Cross, *Jpn Soc. Engr Edu*, **64-65**, 15-20 (2016).
- (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.* **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: 304**
- (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: 377**

### Memberships

Japan Ceramic Society, American Society for Engineering Education, International House of Japan

### 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 pp., 2012.
- (3) *Embedded Memory for Nano-Scale VLSI*, Ed. K. Zhang, Chapter 8: FeRAM, S. Kawashima and J.S. Cross, Springer USA, 2009.