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 Content Research & Development Section, Center for Innovative Teaching & 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, Graduate Coordinator Energy Science and Engineering, Department of Transdisciplinary Science and Engineering and other dept.
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/AI, Waste to Energy Transformation research and AI, Educational Technology/AI, On-line courses and learning analytics, Personalized Learning, Engineering Edu

Teaching

Technical communications, scientific writing, learning management systems, online course videomaking, introduction to materials engineering, engineering measurements

International Student Exchange Activities and Service

Steering Committee Chairman of Asia-Oceania Top University League in Engineering (AOTULE) from 2011-2015, Co-chair Tokyo Tech Summer Program committee and General Manager Online Content (OCRD) Section, Center for Innovative Teaching and Learning, Tokyo Tech , 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

■ 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 students to develop their full research capacity in his interdisciplinary lab and developing new technology with industry.

■ Jeffrey is a native speaker of American English and a fluent speaker in Japanese

Awards

2021 Tokyo Institute of Technology Best Engineering Teacher Award
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) Muhammad Usman, Shuo Cheng, Sasipa Boonyubol, Jeffrey S. Cross. From biomass to biocrude: Innovations in hydrothermal liquefaction and upgrading, Energy Conversion and Management, Elsevier, 302, 118093 (2024).
(2) Abraham Castro Garcia, Shuo Cheng, Shawn E. McGlynn, Jeffrey S. Cross. Machine Learning Model Insights into Base-Catalyzed Hydrothermal Lignin Depolymerization, ACS Omega, Vol. 8, No. 35, Page 32078–32089, (2023).
(3) Machine learning based analysis of reaction phenomena in catalytic lignin depolymerization, AC Garcia, C Shuo, JS Cross, Bioresource Technology 345, 126503 (2022).
(4) Biomass Feedstocks for Liquid Biofuels Production in Hawaii & Tropical Islands: A Review. M Usman, S Cheng, JS Cross International Journal of Renewable Energy Development 11 (2022).
(5) Investigating Mechanical Engineering Learners' Satisfaction with a Revised Monozukuri MOOC, MKJ Carlon, MR Gaddem, C Augusto, H Reyes, T Nagahama, JS Cross EMOOCs Conference, 237, (2021).
(6) Can Japan Meet Its 2030 Nuclear Power Target? R Zissler, JS Cross, Journal of Asian Energy Studies 5 (1) (2021).

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: 351**
(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: 551**

Memberships

Materials Research Society, Japan Society for Engineering Education, American Society for Engineering Education, International House of Japan

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) May Kristine Jonson Carlon, Sasipa Boonyubol, Nopphon Keerativoranan, Jeffrey S. Cross, Educational Data Science Approach for an End-to-End Quality Assurance Process for Building Creditworthy Online Courses, Educational Data Science: Essentials, Approaches, and Tendencies Editor**:** Alejandro Peña-Ayala, Publisher: Springer, Singapore, 2023