

KOZO SAITO
(December 2016)

Office Address

Dept. of Mechanical Engineering, University of Kentucky, Lexington, KY 40506-0503
Tel: (859) 257-6336/Fax (859) 257-3304, E-mail: ksaito@uky.edu

Education

B.S. (1975); Dr. Engg. (1980) Mechanical Engineering, Seikei University, Tokyo, Japan
(Doctoral thesis advisor: R.I. Emori)

Professional Positions Held

University of Kentucky

The Tennessee Valley Authority (titled) Professor in Mechanical Engineering (2001 – present) and Director, Institute of Research for Technology Development (IR4TD, 2007 - present); Professor (1993 – 2000); Associate Professor (1986 - 1993)

Princeton University

Member of Professional Research Staff (1984 - 1986); Research Associate (1981 – 1984)

University of California, San Diego

Postgraduate Assistant Engineer (1980 - 1981) (Advisors: F.A. Williams and A.S. Gordon)

Special Assignments

National Institute of Standards and Technology (formally NBS) (1984-85)

Inter-governmental Personnel Act Assignment

Factory Mutual Research Corp. (The summer of 1987 and of 1988)

Summer Scientist

University of Tokyo

Visiting Professor (1993 spring semester and May, 1995)

Seikei University in Japan

Visiting Research Fellow (Spring of 1993, 95, 97)

USDA Forest Service, Missoula Montana (summer of 1994)

Visiting Researcher to develop a maximum spotting distance for running crown fires

Synergistic Activities

National Research Council, Committee on Demilitarization of Assembled Chemical Weapons (1997 - 2000)

International Scale Modeling Committee Chair (1988 - present)

Intl. Scientific Committee, Inst. Fluid Sciences, Tohoku University Japan (2010 – present)

Publication Committee for the International Symposia (25th, 26th and 27th) on Combustion,

Founding Director for Industrial Applications and Engineering Science Laboratory, IAES (1993-2007) and Institute of Research for Technology Development, IR4TD (2007-present)

Liaison and Advisor, UK – Toyota on Lean and R&D Collaboration (1993 – present)

Graduate Student and Postdoctoral Advisees, and Visiting Scholars from Seventeen Different Countries

29 doctoral students (26 completed); 34 MS students (34 completed);

45 postdoctoral/visiting scholars (45 completed)

Research Field

Combustion, Fire research, Scale Modeling, Nano technology, Monozukuri including Toyota Production System and production engineering

Research Funding

IAES (Industrial Applications and Engineering Sciences Laboratory) was established in 1993 and operated until 2007, when it was renamed as IR4TD (Institute of Research for Technology Development) with a total of \$2M endowment provided by Toyota and the state of KY. Over the period of 1993-2016, research and operational funds were provided by multiple industries and government agencies. As a result, IR4TD has attained and sustained a self-financing status since 2007 (for the year 2016 alone, a total of 30 people have been supported).

Example Patents (out of 9)

1. A.J. Salazar, K. Saito, R.P. Alloo, and N. Tanaka, “Wet scrubber and paint spray booth including the wet scrubber,” Patent No.: **US 6,024,796**, February 15, 2000.
2. K. Saito, M.I. Hassan Ali, M.A. Omar, M. Sakakibara, T. Suzuki, and Y. Tanigawa, “Systems and methods for inspecting coatings,” Patent No.: **US 7,220,966**, May 22, 2007.

Example Publications (out of 180)

3. L. Yuan, K. Saito, W. Hu, and Z. Chen, “Ethylene flame synthesis of well-aligned multi walled carbon nanotubes,” *Chemical Physics Letters*, vol. **346**: 23 - 28 (2001).
4. W. Hu, D. Gong, Z. Chen, L. Yuan, K. Saito, P. Kichambare and C.A. Grimes, “Growth of well aligned carbon nanotube arrays on silicon substrate using porous alumina film as nano template,” *Applied Physics Letters*, vol. **79**: 3083 - 3085 (2001).
5. M. Omar, M.I. Hassan, K. Saito, and R. Alloo, “IR self-referencing thermography for detection of in-depth defects,” *Infrared Physics and Technology*, vol. **46**: 283-289 (2005).
6. K. Kuwana and K. Saito, “Modeling CVD synthesis of carbon nanotubes: nanoparticle formation from ferrocene,” *Carbon*, vol. **43**: 2088-2095 (2005).
7. K. Saito Edited., *Progress in Scale Modeling*: Summary of the First International Symposium on Scale Modeling (ISSM in 1988) and Selected Papers from subsequent Symposia (ISSM II in 1997 through ISSM V in 2006, Springer, 2008.
8. T.X. Li, D.L. Zhu, N. Akafuah, K. Saito, and C.K. Law, “Combustion characterization of bio-diesel produced from waste vegetable oils,” *Proc. The Combustion Institute*, vol. **33**: 2039-2046 (2011).
9. K. Saito and F.A. Williams, “Scale modeling in the age of high speed computation,” *Progress in Scale Modeling*, Volume II: 1-16, Springer, 2014.
10. M.A. Finney, J.D. Cohen, J.M. Forthofer, S.S. McAllister, M.J. Gollner, D.J. Gorham, K. Saito, N.K. Akafuah, B.A. Adam, J.D. English, “The role of buoyant flame dynamics in wildfire spread,” *Proc. The National Academy of Sciences*, vol. **112** (32): 9833-9838 (2015).

Research Collaborators

Forman Williams (UCSD); Mark Finey (USDA Forest Service); Jun Ishimoto (Tohoku University, Japan); Akihiko Ito (Hirosaki University, Japan); Kazu Kuwana (Yamagata University, Japan); Yuji Nakamura (Toyohashi University of Technology, Japan); Kozo Sekimoto (Sekimoto SE Engineering, Japan); Mohamed Hassan (Masda Inst., Abuh Dahbi); Keng Chuah (INTI University, Malaysia); Belal Ghalaibeh (U. Jordan, Jordan)