



Professor

SHINJO Junji

Room 1116, Interdisciplinary Faculty of Science and Engineering Building #3

TEL: 0852-32-6348 (Ext. 6284)

Email: [jshinjo\[at\]ecs.shimane-u.ac.jp](mailto:jshinjo@ecs.shimane-u.ac.jp)

(Please change [at] to @ for email.)

Website: http://www.ecs.shimane-u.ac.jp/~jshinjo/index_e.html

Background

- 2020- Professor, Next Generation Tatara Co-Creation Centre, Shimane University
- 2016-2019 Associate Professor, Mechanical, Electrical and Electronic Eng., Shimane University
- 2013-2015 Brunel University London, UK
 - 2010-2011 Visiting Scholar, Center for Turbulence Research (CTR), Stanford University, USA
 - 2008-2010 Part-time lecturer, Aoyama Gakuin University
- 2003-2013 Japan Aerospace Exploration Agency (JAXA)
- 2001-2003 National Aerospace Laboratory of Japan (NAL)
- 2001 Dr. Eng. (Aerospace Engineering), University of Tokyo
- 1998 Master Eng. (Aerospace Engineering), University of Tokyo
- 1996 Bachelor Eng. (Aerospace Engineering), University of Tokyo

Research

Areas: Numerical simulation, Multiphase flow, Heat/mass transfer, Metal processing

I have mostly worked in aerospace research areas using numerical simulation, especially focusing on fluid dynamics and thermal engineering for engines. Complicated multiscale/multiphysics phenomena have been investigated, using in-house numerical codes, such as liquid/gas flows with surface tension, solid/gas flows, phase change, heat/mass transfer, compressibility, non-ideal equation of state gas/liquid/solid, chemical reactions and turbulence. Metal processing requires exactly the same understanding as the above aspects on thermo-fluid dynamics and my research is currently focused on elucidating physical mechanisms in metal processing.

Key papers

1. C. Panwisawas, Y. Gong, Y. T. Tang, R. C. Reed, J. Shinjo, "Additive manufacturability of superalloys: Process-induced porosity, cooling rate and metal vapour," *Additive Manufacturing* 47 (2021) 102339.
2. J. Shinjo, C. Panwisawas, "Digital materials design by thermal-fluid science for multi-metal additive manufacturing," *Acta Materialia* 210 (2021) 116825.
3. J. Shinjo, A. Umemura, "Fluid dynamic and autoignition characteristics of early fuel sprays using hybrid atomization LES," *Combustion and Flame* 203 (2019) 313-333.
4. J. Shinjo, J. Xia, L. C. Ganippa, A. Megaritis, "Puffing-enhanced fuel/air mixing of an evaporating single *n*-decane/ethanol emulsion droplet and a droplet group under convective heating," *Journal of Fluid Mechanics* 793 (2016) 444-476.