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Research areas (specialty) and Keywords

Computational materials physics, electronic structure calculations, molecular dynamics calculations, nanoscale electrical and thermal transport, nanomaterial properties, materials informatics

EDUCATION

1984 B. Sci.: Department of Physics, School of Science, The University of Tokyo
1986 M. Sci.: Department of Physics, School of Science, The University of Tokyo
1989 D. Sci.: Department of Physics, School of Science, The University of Tokyo

WORKING EXPERIENCE

1989-1994 Researcher, Aono Atomcraft Project, Research Development Corporation of Japan
1994-1997 Visiting Researcher, Advanced Research Laboratory, Hitachi, Ltd.
1997-present Department of Materials Engineering, The University of Tokyo
(1997-2004: Associate Professor, 2004-present: Professor)
2005-2006: Head of Department of Materials Engineering
2012-2013: Chair, International Exchange Committee, School of Engineering, UTokyo
2015-present: Director, Center for International Affairs, School of Engineering, UTokyo
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HONORS AND AWARDS

2011 Fellow, Surface Science Society of Japan

REPRESENTATIVE WORKS:

1) T. Yamamoto, S. Watanabe and K. Watanabe, "Universal features of quantized thermal conductance of carbon nanotubes," Phys. Rev. Lett. **92** (2004) 075502.
2) T. Gu, T. Tada, and S. Watanabe, "Conductive Path Formation in the Ta_2O_5 Atomic Switch," ACS Nano **4** (2010) 6477.
3) T. Yamamoto, K. Sasaoka, and S. Watanabe, "Universality and Diversity in a Phonon-Transmission Histogram of Isotope-Disordered Carbon Nanotubes," Phys. Rev. Lett. **106** (2011) 215503.
4) J. Terao, A. Wadahama, A. Matono, T. Tada, S. Watanabe, S. Seki, T. Fujihara and Y. Tsuji, "Design principle for increasing charge mobility of π-conjugated polymers using regularly localized molecular orbitals," Nat. Commun. **4** (2013) 1691.
5) B. Xiao, S. Watanabe, "Oxygen vacancy effects on an amorphous-TaO_x-based resistance switch: a first principles study", Nanoscale **6** (2014) 10169.
6) S. Kasamatsu, S. Watanabe, C. S. Hwang, S. Han, "Emergence of Negative Capacitance in Multidomain Ferroelectric–Paraelectric Nanocapacitors at Finite Bias", Adv. Mater. **28** (2016) 335.