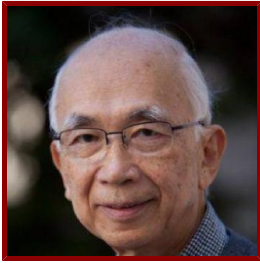


Stanford



Yoshio Nishi

Professor (Research) of Electrical Engineering, Emeritus

Bio

BIO

Nishi's research interest has been in silicon and germanium-based CMOS devices, processes and materials. He is currently interested in research for new device structures with new materials in the nanoelectronics era, resistive switching memory, metal gate work function engineering, flexible electronics, graphene band engineering.

ACADEMIC APPOINTMENTS

- Emeritus Faculty, Acad Council, Electrical Engineering

HONORS AND AWARDS

- Fellow, IEEE (1987)
- Life Fellow, IEEE (2014)
- Jack A. Morton Award, IEEE (1995)
- Robert N. Noyce Medal, IEEE (2002)
- Lifetime Achievement Award, SEMI (2008)
- Fellow International, Japan Society of Applied Physics (2012)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Evaluation Committee, MANA project in NIMS (2010 - 2017)
- Technical Advisory Board, Ultratech Stepper Inc (1994 - present)
- Board of Directors, Zepton Inc (2012 - present)

PROFESSIONAL EDUCATION

- PhD, University of Tokyo (1973)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

resistive switching nonvolatile memory mechanism, and 2D materials and devices

Teaching

STANFORD ADVISEES

Doctoral (Program)

Junyi Wang

Publications

PUBLICATIONS

- **Carbon nanotube thermoelectric devices by direct printing: Toward wearable energy converters** *APPLIED PHYSICS LETTERS*
Lee, H., Furukawa, N., Ricco, A. J., Pop, E., Cui, Y., Nishi, Y.
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- **Contact Engineering of Trilayer Black Phosphorus With Scandium and Gold** *IEEE JOURNAL OF THE ELECTRON DEVICES SOCIETY*
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2019
- **Formation of epitaxial Hf digermanide/Ge(001) contact and its crystalline properties** *JAPANESE JOURNAL OF APPLIED PHYSICS*
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- **Copper interstitial recombination centers in Cu₃N** *PHYSICAL REVIEW B*
Yee, Y., Inoue, H., Hultqvist, A., Hanifi, D., Salleo, A., Magyari-Kope, B., Nishi, Y., Bent, S. F., Clemens, B. M.
2018; 97 (24)
- **Transient dynamics of NbO_x threshold switches explained by Poole-Frenkel based thermal feedback mechanism** *APPLIED PHYSICS LETTERS*
Wang, Z., Kumar, S., Nishi, Y., Wong, H.
2018; 112 (19)
- **Research Update: Ab initio study on resistive memory device optimization trends: Dopant segregation effects and data retention in HfO_{2-x}** *APL MATERIALS*
Magyari-Koepe, B., Song, Y., Duncan, D., Zhao, L., Nishi, Y.
2018; 6 (5)
- **Effect of thermal insulation on the electrical characteristics of NbO_x threshold switches** *APPLIED PHYSICS LETTERS*
Wang, Z., Kumar, S., Wong, H., Nishi, Y.
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- **HfO₂/Ti Interface Mediated Conductive Filament Formation in RRAM: An Ab Initio Study** *IEEE TRANSACTIONS ON ELECTRON DEVICES*
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- **Filament-Induced Anisotropic Oxygen Vacancy Diffusion and Charge Trapping Effects in Hafnium Oxide RRAM** *IEEE ELECTRON DEVICE LETTERS*
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- **Memristors: Direct Observation of Localized Radial Oxygen Migration in Functioning Tantalum Oxide Memristors (Adv. Mater. 14/2016)**. *Advanced materials*
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- **The effects of uniaxial and biaxial strain on the electronic structure of germanium** *COMPUTATIONAL MATERIALS SCIENCE*
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2015; 62 (10): 3160-3167
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2015; 107 (8)
- **In-operando synchronous time-multiplexed O K-edge x-ray absorption spectromicroscopy of functioning tantalum oxide memristors** *JOURNAL OF APPLIED PHYSICS*
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