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Materials research Center for Element Strategy



Institute of Innovative Research, Tokyo Institute of Technology  
Laboratory for Materials and Structures

### Contact details

Name: Toshio Kamiya

Occupation: Professor of Laboratory for Materials and Structures, Institute of Innovative Research, Tokyo Institute of Technology  
Vice Director of Institute of Innovative Research, Tokyo Institute of Technology  
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### Personal Information

Place/date of birth: Japan / October 26, 1967

Gender : Male

Marital status : Single

Nationality : Japanese

### Education

April, 1986 – March, 1990: Undergraduate course at Department of Inorganic Materials, Faculty of Engineering, Tokyo Institute of Technology (Bachelor of Engineering)

April, 1991 – March, 1992: Master Course at Department of Inorganic Materials, Graduate School of Engineering, Tokyo Institute of Technology

March, 1992: Leave Department of Inorganic Materials, Tokyo Institute of Technology

December, 1996: Obtain Doctor of Engineering at Department of Inorganic Materials, Tokyo Institute of Technology for Study on Dielectric Crystals by First-Principles and Molecular Simulations

### Professional Appointments

April, 1992: Assistant Professor of Department of Inorganic Materials, Tokyo Institute of Technology

November, 1996: Move to Department of Electrochemistry, Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology

April, 1997: Move to Materials and Structures Laboratory, Tokyo Institute of Technology

January, 2002: Lecturer at Materials and Structures Laboratory, Tokyo Institute of Technology

December, 2003: Associate Professor at Materials and Structures Laboratory, Tokyo Institute of Technology

August, 2010 – present: Professor at Materials and Structures Laboratory, Tokyo Institute of Technology



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July, 2012 – present: Vice Director of Materials Research Center for Element Strategy,  
Tokyo Institute of Technology

July, 2017 – present: Vice Director of Institute of Innovative Research, Tokyo Institute of  
Technology

July, 2017 – present: Director of Laboratory for Materials and Structures, Tokyo Institute  
of Technology

## Research profession

Area: Materials science / Semiconductor physics / Device engineering /  
Computer-assisted materials design

## Publications

ResearchID: E-8651-2014

355 publications, 16934 total citations, h-index 60 (as of 2017)

## Representative publications

### *Oxide semiconductor thin-film transistor*

- 1) Kenji Nomura, Hiromichi Ohta, Akihiro Takagi, Toshio Kamiya, Masahiro Hirano, Hideo Hosono, Room-Temperature Fabrication of Transparent Flexible Thin Film Transistors Using Amorphous Oxide Semiconductors, *Nature (London)* **432** (2004) 488.
- 2) Kenji Nomura, Hiromichi Ohta, Kazushige Ueda, Toshio Kamiya, Masahiro Hirano, Hideo Hosono, Thin film transistor fabricated in single-crystalline transparent oxide semiconductor, *Science* **300** (2003) 1269.
- 3) Toshio Kamiya and Hideo Hosono: Material characteristics and applications of transparent amorphous oxide semiconductors; *NPG Asia Mater.* **2** (2010) 1522.
- 4) Toshio Kamiya, Kenji Nomura and Hideo Hosono: Present status of amorphous In-Ga-Zn-O thin-film transistors; *Sci. Technol. Adv. Mater.* **11** (2010) 044305.
- 5) Keisuke Ide, Kenji Nomura, Hideo Hosono, and Toshio Kamiya: Electronic Defects in Amorphous Oxide Semiconductors : A Review; *Phys. Status Solidi A* **216** (2018) 1800372.

### *Inorganic electrified*

- 6) Katsuro Hayashi, Satoru Matsuishi, Toshio Kamiya, Masahiro Hirano, Hideo Hosono, Light-induced conversion of an insulating refractory oxide into a persistent electronic conductor, *Nature (London)* **419** (2002) 462.
- 7) Satoru Matsuishi, Yoshitake Toda, Masashi Miyakawa, Katsuro Hayashi, Toshio Kamiya, Masahiro Hirano, Isao Tanaka, Hideo Hosono, High Density Electron Anions in a Nanoporous Single Crystal:  $[\text{Ca}_{24}\text{Al}_{28}\text{O}_{64}]_{4+}(4e^-)$ , *Science* **301** (2003) 626.

## Awards



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- 1) Toshio Kamiya: For study on electronic structures and origins of functions in novel inorganic oxides by combining experimental and theoretical calculations, Fellow of The Japan Ceramics Society (2019).
- 2) Toshio Kamiya: For study of defects and carrier control in amorphous oxide semiconductors and their applications, Fellow of The Japan Society of Applied Physics (2018).
- 3) Toshio Kamiya: for his outstanding contribution to the material science of amorphous-oxide semiconductors, 2015 SID Special Recognition Award, Society of Information Display (2015).
- 4) Toshio Kamiya: Study on electronic and defect structures in amorphous and polycrystalline semiconductors, The Ceramic Society of Japan: Research Award (2013).
- 5) Toshio Kamiya: Study on optoelectronic devices utilizing specific electronic structure of oxide semiconductors, The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology, The Young Scientists' Prize (2007).
- 6) Toshio Kamiya, Kenji Nomura, Hideo Hosono: Design of amorphous oxide semiconductors and room-temperature fabrication of high-performance TFT; The Advanced Technology Award by the Fuji-Sankei group (2005).