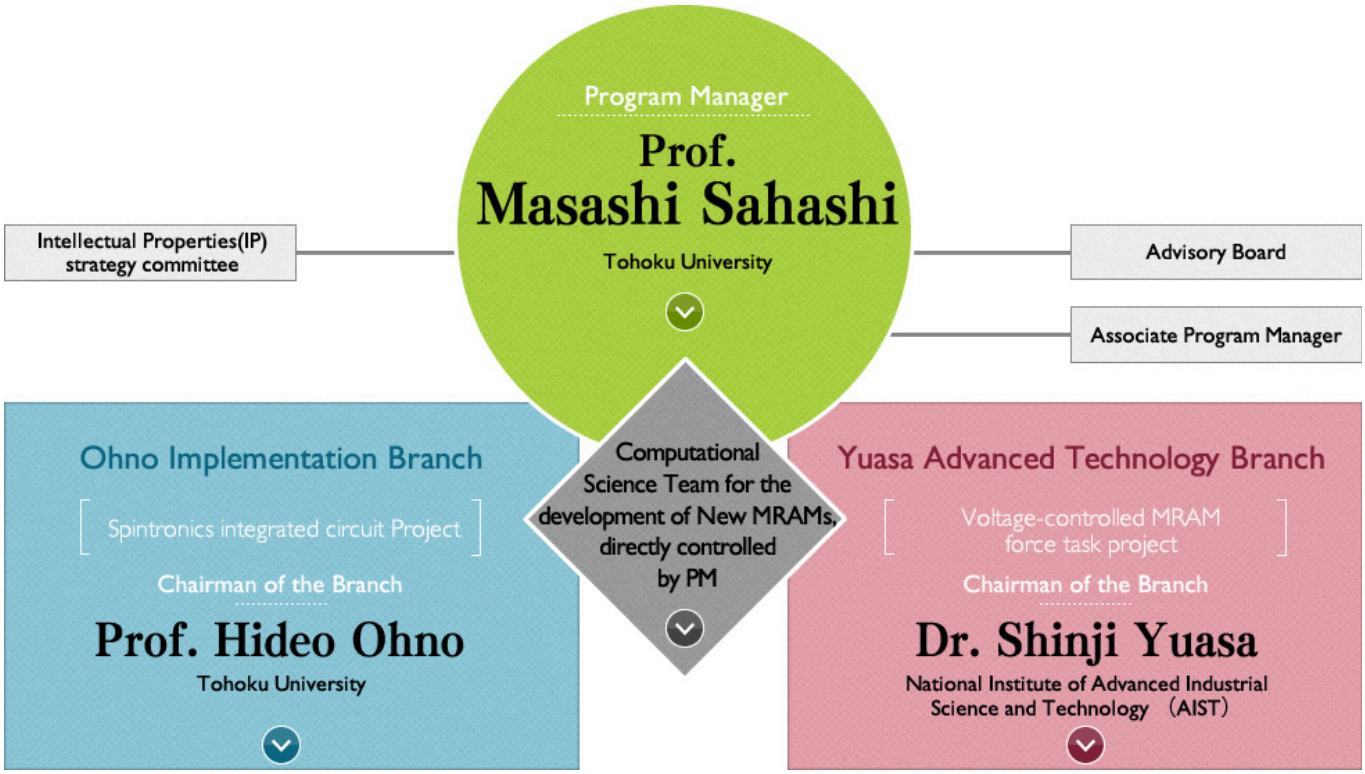





# ORGANIZATION






IP Bridge Exhibit 2028
Western Digital v. IP Bridge
IPR2024-01494



Impulsing Paradigm Change through Disruptive Technologies Program (ImPACT) /
Cabinet Office, Government of Japan.
ImPACT Program Manager

# Prof. Masashi Sahashi

Tohoku University

1974 Graduate, Nagoya University Master's Course
Researcher, Toshiba Research& Development Center

1999 Senior Fellow , Toshiba Research& Development Center

2002 Doctorate, Engineering (Nagoya University Graduate School)

2003 Professor, Tohoku University Graduate School of Engineering

2014 ImPACT Program Manager
(Joint appointment between Tohoku Univ. and JST)

Awards and Recognition: the Science and Technology Director Award, the Nikkei BP Technology, Grand Awards, the Onshi Invention Award, the Shijuhosho (Medal of Honor with Purple Ribbon)

## Ohno Implementation Branch
## ( Spintronics integrated circuit Project)



Chairman of the Branch

# Prof. Hideo Ohno

Tohoku University

**Affiliation:** Professor and Director
Research Institute of Electrical Communication, Tohoku University,
Director
Center for Spintronics Integrated Systems, Tohoku University,
Professor
Center for Innovative Integrated Electronic Systems, Tohoku University,
Principal Investigator
WPI-Advanced Institute for Materials Research, Tohoku University,
Director
Center for Spintronics Research Network, Tohoku University
**Academic Background:** Ph. D, Electronic Engineering, University of Tokyo
**Research field:** Spintronics, Applied Physics, Electronic Engineering
**Awards and Recognition:** IBM Japan Science Award,
IUPAP Magnetism Prize,
Japan Academy Prize,
Presidential Prize for Research Excellence of Tohoku University,
The 2005 Agilent Technologies Europhysics Prize,
IEEE Magnetics Society
Distinguished Lecturer 2009,
Thomson Reuters Citation Laureate,
JSAP Outstanding Achievement Award,
IEEE David Sarnoff Award,

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ORGANIZATION | Revolutionary important technology in the program

JSAP Compound Semiconductor Electronics Achievement Award,
Leo Esaki Prize,
C&C Prize

- Ohno Laboratory, Tohoku University
- Center for Spintronics Integrated Systems, Tohoku University



## Prof. Tetsuo Endoh

Tohoku University

**Affiliation:**
Professor:TOHOKU University Graduate School of Engineering Department of Electrical Engineering
Director: TOHOKU University Center for Innovative Integrated Electronic Systems
**Research field:**
Integrated Circuit, Non-volatile memory, Non-volatile logic, Power management, Power devices, Power electronics

- TOHOKU University Endoh Muraguchi Lab.
- TOHOKU University Center for Innovative Integrated Electronic Systems



## Prof. Takahiro Hanyu

Tohoku University

**Affiliation:**
Professor, Research Institute of Electrical Communication, Tohoku University
**Research field:**
High-performance, ultra-low-power and highly reliable VLSI processor and its application to IoT systems, Circuit and architecture design methodology for nonvolatile logic-in-memory LSI, Brain-inspired LSI and its system applications

- Hanyu/Natsui Laboratory, Tohoku University

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# Yuasa Advanced Technology Branch (Voltage-controlled MRAM task force project)

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Chairman of the Branch

# Dr. Shinji Yuasa

National Institute of Advanced Industrial Science and Technology (AIST)

**Affiliation:** National Institute of Advanced Industrial Science and Technology (AIST)

**Academic Background:** Dr. Shinji Yuasa received a PhD in Physics from Keio University in 1996. After receiving his doctorate,he served as a staff scientist at the Electrotechnical Laboratory (Tsukuba, Japan), where he worked on spin-dependent transport in metallic magnetic multil ayers. Since 2001, he has been a staff scientist at theNational Institute of Advanced Industrial Science and Technology (AIST), working on the physics and device applications of magnetic tunnel junctions (MTJs). Since 2010, he has been a Director of the Spintronics Research Center at AIST. He has given more than 100 invited talks at international conferences. For his achievement of the giant tunnel magnetoresistance (TMR) effect in MgO-based MTJs, he has been awarded or co-awarded more than 20 prizes, including the Asahi Award in 2007 and Distinguished Lecturer of IEEE Magnetic Society in 2012.

**Research field:** materials Science, magnetics, spintronics

**Awards and Recognition:** The Science and Technology Prize (2016), the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology on “Studies on giant tunnel magnetoresistance effect”. JSPS Prize (2010) on “Development of High Performance Magnetic Tunnel Junction Devices”.

Tsukuba Prize (2009) on “Discovery of giant tunnel magnetoresistance in MgO-based magnetic tunnel junctions and its industrial applications”. A prize of 5 million yen was awarded for S. Yuasa and Y. Suzuki.

Inoue Harushige Prize (2009) on “Magnesium oxide tunnel magnetoresistive element and its mass production technology”.

Prime Minister Prize (2008) on “Development of high-performance magnetic tunnel junctions for ultra-high-density hard disk drives”.

Asahi Award (2008) on ‘‘Studies on development and application of tunnel magnetoresistive effect (TMR)”.

IBM Japan Science Prize (2007) on “Studies on tunnel magnetoresistive effects and their application”.

Tokyo Techno Forum 21 Gold Medal Prize (2006) on “Study on spintronics technology for MRAM”.

Marubun Science Prize (2006) on “Study on tunnel magnetoresistance effect”.

Ichimura Science Prize (2005). A prize of 1 million yen was awarded for S. Yuasa.

The Young Scientists’ Prize (2005), the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology on “Development of MgO-based magnetic tunnel junctions”.

› AIST, Department of Electronics and Manufacturing

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## Dr. Takayuki Nozaki

National Institute of Advanced Industrial Science and Technology (AIST)

**Affiliation:**
National Institute of Advanced Industrial Science and Technology (AIST), Spintronics Research Center,
**Research field:**
Magnetic multilayers, Magnetoresistance, Voltage control of magnetic properties

› AIST, Department of Electronics and Manufacturing



## Dr. Kazuhiro Hono

National Institute for Materials Science

**Affiliation:**
Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science
**Research field:**
Magnetic Materials, Magnetic Recording Media, Spintronic Materials, Magnetoresistive Devices, Strucgure analysis by 3DAP and TEM

› Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science



## Prof. Shigemi Mizukami

Tohoku University

**Affiliation:**
Professor, Dr. of Eng.
WPI - Advanced Insitute for Materials Research, Tohoku University
**Research field:**
Spintronics devices, Mgnetic material films, device characterization with utrafast light pule

› AIMR: Researchers List Laboratories & Researchers



## Prof. Yoshishige Suzuki

Osaka University

**Affiliation:**
Osaka University,
Graduate School of Engineering Science
National Institute of Advanced Industrial Science and Technology(AIST)
National Institute for Materials Science(NIMS)



## Dr. Hiroaki Yoda

Toshiba Corporation

**Affiliation:**
Corporate Research & Development Center
**Research field:**
MRAM，Spin Transfer Torque writing, Voltage Control Magnetic Anisotropy, Spin Orbit Torque writing, Switching mechanism of nano-magnet,



## Dr. Shinobu Fujita

Toshiba Corporation

**Affiliation:**
Corporate Research & Development Center
**Research field:**
Nonvolatile Memory Systems and Applications, Semiconductor Memory Architect

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**Research field:**
Spintronics

MTJ material, deposition, &etching, MRAM Integration.

› Y. Suzuki & S. Miwa Lab., Osaka University



Dr. Motohiro Suzuki

Japan Synchrotron Radiation Research Institute (JASRI)

**Affiliation:**
Japan Synchrotron Radiation Research Institute (JASRI), Research & Utilization Division, Senior Scientist, MCD Team Leader, D. Sc.

**Research field:**
Synchrotron X-ray absorption spectroscopy in magnetic materials and development of reated techniques, earned the Award for Young Scientist of the Physical Society of Japan

› SPring-8 Staff Profile

## Computational Science Team for the development of New MRAMs,directly controlled by PM



## Dr. Hiroshi Imamura

National Institute of Advanced Industrial Science and Technology (AIST)

**Affiliation:**
National Institute of Advanced Industrial Science and Technology (AIST)
Spintronics Research Center
Theory Team, Team Leader
**Research field:**
Theoretical research for development of spintronics devices

› National Institute of Advanced Industrial Science and Technology (AIST)



## Prof. Masafumi Shirai

Tohoku University

**Affiliation:**
Risearch Institute of Electrical Communication, Tohoku University, Professor; Center for Spintronics Research Network, Tohoku University, Deputy Director; Doctor of Engineering (Osaka University).
**Research field:**
Materials design, Condensed Matter Theory, Spintronics.

› Materials Functionality Design (Shirai Group), Research Institute of Electrical Communication, Tohoku University



## Prof. Tatsuki Oda

Kanazawa University

**Affiliation:**
Professor, Faculty of Mathematics and Physics, Institute of Science and Engineering, Kanazawa University
**Research field:**
Theoretical material physics and computational material science. In particular, intersecting field among the three key words of Nanoscience, Magnetism, and First-Principles Molecular Dynamics, are mainly studied. The interface of perpendicular magnetization is one of interesting fields. A large scale computer is used to clarify a tiny scale of energy.

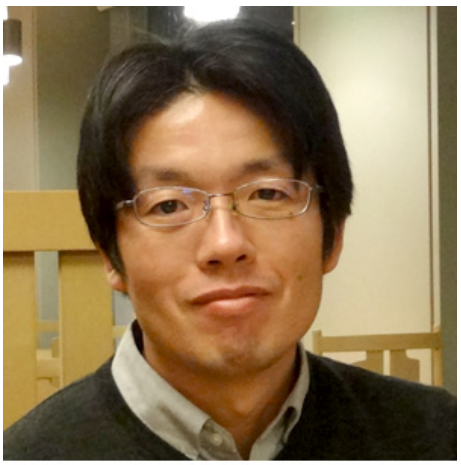
› Theoretical and Computational Nanoscience



## Prof. Kohji Nakamura

Mie University

**Affiliation:**
Mie University
**Research field:**
development of first?principles calculation



## Prof. Yoshio Miura

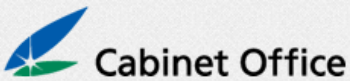
Kyoto Institute of Technology

**Affiliation:**
Kyoto Institute of Technology, Associate Professor (NIMS, CMSM&MI2I, Special Researcher)

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methods and their use for invesitigations on noncollinear magnetism, magnetocrystalline anisotropy, and external electric field?induced magnetic phenomena at surfaces and interfaces

**Research field:**
Theoretical study on spin related physics such as magnetoresistance, magneto-crystalline anisotropy and magnetic damping










ImPACT PROGRAM

Achieving Ultimate Green IT Devices with Long Usage Time without Charging



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