Curriculum Vitae

Masaki Shigemori

As of March 4, 2021

(Blue text is a hyperlink to the relevant web pages)

Personal

Name	Masaki Shigemori (重森 正樹)
Affiliation 1	Designated Professor (特任教授). Theoretical Particle Physics group (E 研), Department of Physics, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8601, Japan.
Affiliation 2	Affiliate Professor (特任教授). Yukawa Institute for Theoretical Physics, Kyoto University, Kitashirakawa Oiwakecho, Sakyo-ku, Kyoto 606-8502, Japan.
Affiliation 3	Permanent Visiting Staff member. Centre for Research in String Theory, School of Physics and Astronomy, Queen Mary University of London, 327 Mile End Road, London, E1 4NS, United Kingdom.

Jobs

Oct. 2018–present	Designated Professor. Department of Physics, Nagoya University, Japan.
Apr. 2019–	Affiliate Professor. Yukawa Institute for Theoretical Physics, Kyoto University, Japan.
Oct. 2018–present	Permanent Visiting Staff member. Center for Research in String Theory, Queen Mary University of London, United Kingdom.
Oct. 2016–Sep. 2018	Tenured Lecturer. Center for Research in String Theory, Queen Mary University of London, United Kingdom.
Oct. 2016–Mar. 2019	Affiliate Associate Professor. Yukawa Institute for Theoretical Physics, Kyoto University, Japan.
Apr. 2013–Sep. 2016	Associate Professor (Kyoto University Hakubi Researcher). Yukawa Institute for Theoretical Physics, Kyoto University, Japan.
Nov. 2010–Mar. 2013	Assistant professor. Kobayashi-Maskawa Institute for the Origin of Particles and the Universe (KMI), Nagoya University, Japan.
Sep. 2007–Oct. 2010	Postdoctoral researcher. String Theory Group, Institute for Theoretical Physics, University of Amsterdam, The Netherlands.
Sep. 2004–Aug. 2007	Postdoctoral scholar (Sherman Fairchild Prize Fellow). Particle Theory Group, California Institute of Technology, Pasadena, USA.

Education

2000–2004	Ph.D. in theoretical elementary particle physics University of California, Los Angeles, USA. Advisor: Prof. Per Kraus
1998–2000	Ph.D. student in theoretical condensed matter physics University of Tokyo, Japan
1996–1998	M.S. in theoretical condensed matter physics University of Tokyo, Japan
1992–1996	B.S. in Physics University of Tokyo, Japan

External Activities

Invited talks at international[*1] symposia, colloquia, conferences, and workshops.

- "What microstate geometries tell us",

  KEK Theory workshop 2020, KEK, Tsukuba, Japan, Dec. 18, 2020 (online via Zoom).

- Panel discussion: CFT issues, tides and scrambling,

  Black-hole microstructure II, CEA Saclay, France, Dec. 10, 2020 (online via Zoom).

- "Beyond superstrata",

  Black-hole microstructure, CEA Saclay, France, Oct. 12, 2020 (online via Zoom).

- "Counting Superstrata",

  Workshop on Black Hole Microstates, CEA Saclay, France, May 29, 2019.

- "Black hole microstates,"

  Workshop on recent developments in AdS/CFT, OIST, Okinawa, Japan, Apr. 2, 2019.

- "Supercharging Superstrata,"

  International Symposium RIKKYO MathPhys 2019, Rikkyo University, Japan, Jan. 13, 2019.

- "Black Hole Microstates,"

  Sugawara Symposium on Fundamental Problems in Theoretical Physics, OIST, Okinawa, Japan, Feb. 28, 2018.

- "The Black Hole Microstate Geometry Program,"

  JGRG27, Hiroshima, Japan, Nov. 30, 2017.

- "Black Hole Microstates and String Theory,"

  High Energy Physics Groups Colloquium, Vrije Universiteit Brussel, Belgium, Nov. 10, 2016.

- "Codimension-1 supertubes,"

  Duality and Novel Geometry in M-theory, APCTP, Pohang, Korea, Jan. 27, 2016.

- "The microstate geometry program and superstrata,"

  8th Taiwan String Workshop, National Center for Theoretical Sciences, National Tsing Hua University, Hsinchu, Taiwan, Nov. 16–18, 2015;

[*1] The language of the events was English.

- "Habemus Superstratum,"

  KEK Theory Workshop 2015 Dec., KEK, Tsukuba, Japan, Dec. 2, 2015;

  International Workshop on Strings, Black Holes and Quantum Information, Tohoku Forum for Creativity, Tohoku University, Sep. 10, 2015;

  Strings 2015, ICTS-TIFR, Bengaluru, India, Jun. 25, 2015;

  de Sitter and Microstate Landscapes in String Theory, CEA Saclay, France, Jun. 16, 2015.

- "Codimension-2 solutions in five-dimensional supergravity,"

  KIAS-YITP Joint Workshop 2015 Geometry in Gauge Theories and String Theory, KIAS, Seoul, Korea, Sep. 16, 2015;

  CERN-CKC TH Institute on Duality Symmetries in String and M-Theories, CERN, Switzerland, Aug. 14, 2015.

- "The Microstate Geometry Program – the Past, Present and Future,"

  Second String Theory in Greater Tokyo, RIKEN, Japan, Jun. 9, 2015.

- "The Black Hole Puzzle and String Theory,"

  Sweden-Kyoto Symposium, Session 9: Outstanding Young Researchers—Academic Diversity, Academic Freedom, Uppsala University, Sep. 12, 2014.

- "Aspects of exotic branes,"

  Fourth Joburg Workshop on String Theory, University of Witwatersrand, Johannesburg, South Africa, Sep. 20, 2013;

  KIAS-YITP joint workshop 2013 — String Theory, Black Holes and Holography, Yukawa Institute for Theoretical Physics, Kyoto, Japan, Jul. 2, 2013.

- "Exotic Branes and Black Hole Microstates,"

  Progress in Quantum Field Theory and String Theory, Osaka City University, Japan, Apr. 4, 2012.

- "Brownian motion in AdS/CFT,"

  Branes, Strings, and Black Holes, Yukawa Institute for Theoretical Physics, Kyoto, Japan, Oct. 21, 2009;

  String Theory, The Centro de Ciencias de Benasque Pedro Pascual (CCBPP), Benasque, Spain, Jul. 9, 2009;

  Tenth Workshop on Non-Perturbative Quantum Chromodynamics, l'Institut Astrophysique de Paris, Paris, France, Jun. 12, 2009.

- "Small Black Rings,"

  Southern California Strings Seminar, UCLA, Los Angeles, Dec. 1, 2006.

Talks at international conferences and workshops

- "Recent Developments in the Black Hole Microstate Geometry Program," *Strings and Fields*, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan, Aug. 7, 2017.
- "Non-Geometric Non-Abelian Supertubes,"

  Recent Advances in T/U-dualities and Generalized Geometries, the Rudjer Bošković Institute, Zagreb, Croatia, Jun. 8, 2017.
- "Microscopic Holographic Dictionary for Black Holes"

  Quantum Gravity, String Theory and Holography, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan, Apr. 3, 2017.
- "Exotic branes, double bubbles, and superstrata,"

  The supersymmetric, the extremal and the ugly — solutions in string theory, CEA Saclay, France, Nov. 15, 2011.
- "Moulting black holes,"

  IPMU workshop on black holes, IPMU, University of Tokyo, Kashiwa, Japan, Feb. 25, 2011.
- "Exotic branes and non-geometric backgrounds,"

  International Conference on Strings, M-Theory and Quantum Gravity, Centro Stefano Franscini Monte Verita Ascona, Switzerland, Jul. 26, 2010.
- "Small Black Rings,"

  Black Holes: A Landscape of Theoretical Physics Problems, CERN, Switzerland, Aug. 28, 2008.
- "How a Black Hole Emerges from a Pure State,"

  IPM String School and Workshop, Institute for Studies in Theoretical Physics and Mathematics (IPM), Tehran, Iran, Apr. 16, 2006.
- "Counting Small Black Rings,"

  Mathematical Structures in String Theory, Kavli Institute for Theoretical Physics (KITP), University of California, Santa Barbara, Dec. 12, 2005.

Invited talks at domestic[*2] conferences and workshops

- "ABJ Theory in the Higher Spin Limit,"

  Particle Theory Workshop 2016 – Developments in Quantum Field Theory and Superstring Theory, Rikkyo University, Japan, Mar. 16, 2016.

[*2] The language of the events was Japanese.

- "Toward construction of supergravity superstrata states,"

  Sixth Shizuoka Intensive Lectures on Particle Physics, Shizuoka University, Japan, Dec. 5, 2014.

- "Aspects of exotic branes,"

  KEK Theory Workshop 2013, KEK, Tsukuba, Japan, Mar. 21, 2013.

- "String theory and black hole microstates,"

  a Kikaku Kouen (企画公演, a kind of plenary talk) at *The Physical Society of Japan 67th Annual Meeting*, Kwansei Gakuin University, Japan, Mar. 27, 2012.

- "Exotic branes and black holes,"

  The 8th Japan-Russia working seminars, Nagoya University, Japan, Jan. 13, 2012.

- "Moulting black holes,"

  Second Shizuoka Intensive Lectures on Particle Physics, Shizuoka University, Japan, Jun. 25, 2011.

- "Exotic branes and non-geometric backgrounds,"

  KEK Theory Workshop 2011, KEK, Tsukuba, Japan, Mar. 17, 2011;

  Fourth Meeting on String Theory and the Universe, Hakone, Japan, Feb. 17, 2011.

- "Brownian motion in AdS/CFT,"

  Frontier of Research in Higher Dimensional Black Holes, Yukawa Institute for Theoretical Physics, Kyoto, Japan, Dec. 24, 2009.

Talks at domestic conferences and workshops

- "On superstratum solutions," The Physical Society of Japan Annual Meeting, Osaka City University, Sep. 26, 2015.

- "AdS/CFT and applications," EQ-Lab. Joint Summer School, Nagoya University, Japan, Sep. 7, 2011.

- "Strings in Noncompact Spacetimes: Boundary Terms and Conserved Charges," The Physical Society of Japan Annual Meeting, Rikkyo University, Sep. 14, 2002.

Invited talks at seminars outside Japan

- "$T\bar{T}$ Deformation of Stress-Tensor Correlators from Random Geometry," Jilin University, China, Feb. 4, 2021 (online via Zoom).

- "Non-geometric non-Abelian supertubes", University of Rome Tor Vergata, Italy, Mar. 26, 2018.

- "Black Hole Microstate Geometries and Non-Geometries," University of Southampton, Feb. 24, 2017; University of Liverpool, UK, Mar. 7, 2017.
- "Non-Abelian Supertubes as Black Hole Microstates," Vrije Universiteit Brussel, Belgium, Nov. 9, 2016.
- "The Microstate Geometry Program and Superstrata", University of Southern California, USA, Mar. 23, 2016.
- "Aspects of exotic branes", CEA Saclay, France, Nov. 14, 2013; Nikhef, Netherlands, Oct. 30, 2013.
- "The partition function of ABJ theory", University of Amsterdam, Netherlands, Feb. 28, 2013; String Theory in Greater Paris, France, Feb. 21, 2013.
- "Exotic branes and non-geometric backgrounds," CEA Saclay, France, Jun. 4, 2010; University of Barcelona, May 27, 2010.
- "Brownian motion in AdS/CFT," CEA Saclay, France, Jun. 1, 2010; CERN, Switzerland, Mar. 3, 2009; String Theory in Greater Paris, France, Feb. 5, 2009; Utrecht University, Nov. 14, 2008.
- "Are there four-dimensional black rings?," CEA Saclay, France, Dec. 21, 2007.
- "Metastable vacua in gauge theory and M-theory: Dijkgraaf–Vafa meets Seiberg–Witten in M," String Theory in Greater Paris, France, Dec. 20, 2007; Niels Bohr Institute, University of Copenhagen, Dec. 13, 2007; Ludwig-Maximilians-Universität München, Nov. 8, 2007.
- "Non-supersymmetric Brane/Antibrane Configurations in Type IIA and M Theory," University of British Columbia, Canada, Jul. 5, 2007; University of Amsterdam, Netherlands, Jun. 21, 2007; Kavli Institute for Theoretical Physics (KITP), University of California, Santa Barbara, May 17, 2007.
- "New Branches of Non-supersymmetric Attractors," Harvard University, Cambridge, Apr. 18, 2007.
- "The Phases of D1-D5 CFT — Towards Understanding Black Ring Microscopics," Massachusetts Institute of Technology, Cambridge, Oct. 10, 2006.
- "How a Black Hole Emerges from a Pure State," University of Chicago, Oct. 18, 2006; Perimeter Institute, Waterloo, Canada, Oct. 17, 2006; Brown University, Oct. 11, 2006; Harvard University, Oct. 4, 2006; Tata Institute of Fundamental Research (TIFR), Mumbai, India, Apr. 21, 2006; University of Wisconsin, Madison, Feb. 14, 2006; University of Michigan, Ann Arbor, Feb. 8, 2006.
- "Supersymmetric Gauge Theories with Flavors and Matrix Models," University of Pennsylvania, Feb. 21, 2005.
- "On Low Rank Classical Groups in String Theory, Gauge Theory and Matrix Models," California Institute of Technology, Dec. 12, 2003; University of Kentucky, Jan. 6, 2004.

Invited talks at seminars in Japan

- "$T\bar{T}$ Deformation of Stress-Tensor Correlators from Random Geometry," Department of Physics, Kyoto University, Jan. 13, 2021 (online via Zoom).
- "Random boundary geometry and gravity dual of $T\bar{T}$ deformation", Yukawa Institute for Theoretical Physics, Kyoto University, Mar. 27, 2020.
- "Black hole microstates and superstrata", Shinshu University, Japan, Dec. 18, 2019.
- "Black hole microstates and string theory", Shinshu University, Japan, Dec. 17, 2019.
- "Black Hole Microstates", High Energy Accelerator Research Organization (KEK), Japan, May 8, 2018; Nagoya University, Japan, May 15, 2018.
- "Non-geometric non-Abelian supertubes", Nagoya University, Japan, Aug. 16, 2017.
- "A new class of black hole microstate geometries", Osaka City University, Japan, Jul. 12, 2016.
- "Frontiers of black hole theory", Meiji University, Japan, Jun. 24, 2016.
- "Codimension-2 solutions in five-dimensional supergravity", Kyoto University, Japan, Oct. 21, 2015.
- "The microstate geometry program – the past, present, and future", Nagoya University, Japan, Oct. 27, 2015; Rikkyo University, Japan, May 12, 2015; Kinki University, Japan, Apr. 20, 2015; Yukawa Institute for Theoretical Physics, Kyoto University, Japan, Apr. 9, 2015.
- "Classifying codimension-2 branes in three dimensions", Tohoku University, Japan, May 16, 2014; Kansai particle seminars, Osaka, Japan, Dec. 26, 2013.
- "Aspects of exotic branes", Tsukuba University, Japan, Jul. 14, 2013; Tohoku University, Japan, May 9, 2013.
- "Exotic branes in string theory", Yukawa Institute for Theoretical Physics, Kyoto, Japan, May 29, 2013 and Apr. 12, 2013.
- "The partition function of ABJ theory", Ibaraki University, Japan, Jan. 28, 2013.
- "Black hole microstates and string theory", Hakubi Center, Kyoto University, Japan, Apr. 16, 2013; Hokkaido University, Japan, Nov. 15, 2012; Nihon University, Japan, Nov. 14, 2012; Nagoya University, Japan, Jan. 17, 2012.
- "Exotic branes, double bubbles, and superstrata", Okayama Institute for Quantum Physics, Okayama, Japan, Jun. 15, 2012; University of Tokyo, Komaba, Japan, Jun. 6, 2012; University of Tokyo, Hongo, Japan, Feb. 16, 2012; Tohoku University, Japan, Dec. 15, 2011; IPMU, University of Tokyo, Kashiwa, Japan,

Dec. 12, 2011.

- "Moulting black holes," High Energy Accelerator Research Organization (KEK), Japan, Jun. 22, 2011; Yukawa Institute for Theoretical Physics, Kyoto, Japan, Dec. 14, 2011.
- "A holographic study of thermalization in strongly coupled plasmas," High Energy Accelerator Research Organization (KEK), Japan, Jun. 21, 2011;Nagoya University, Apr. 4, 2011.
- "Exotic branes and non-geometric backgrounds," High Energy Accelerator Research Organization (KEK), Japan, Jun. 22, 2011;Osaka City University, Jan. 25, 2011; Kyoto University, Jan. 19, 2011; Nagoya University, Nov. 15, 2010.
- "Brownian motion in AdS/CFT," IPMU, University of Tokyo, Kashiwa, Japan, Nov. 2, 2009.
- "Non-supersymmetric Brane/Antibrane Configurations in Type IIA and M Theory," Yukawa Institute for Theoretical Physics, Kyoto, Japan, Jun. 14, 2007; Osaka University, Japan, Jun. 12, 2007; Nagoya University, Japan, Jun. 11, 2007; University of Tokyo, Hongo, Japan, Jun. 7, 2007; Tokyo Institute of Technology, Japan, Jun. 6, 2007; University of Tokyo, Komaba, Japan, Jun. 4, 2007.
- "Small Black Rings," University of Tokyo, Hongo, Tokyo, Japan, September 30, 2005.
- "Massless Black Holes and Black Rings as Effective Geometries of the D1-D5 System," University of Tokyo, Hongo, Japan, Sep. 29, 2005; University of Tokyo, Komaba, Japan, Sep. 28, 2005; Yukawa Institute for Theoretical Physics, Kyoto, Japan, Sep. 22, 2005; Nagoya University, Japan, Sep. 21, 2005; Osaka University, Japan, Sep. 20, 2005.
- "Supersymmetric Gauge Theories with Flavors and Matrix Models," The Institute of Physical and Chemical Research (RIKEN), Japan, Dec. 10, 2004; University of Tokyo, Hongo, Japan, Dec. 9, 2004; High Energy Accelerator Research Organization (KEK), Japan, Dec. 7, 2004.
- "On Low Rank Classical Groups in String Theory, Gauge Theory and Matrix Models," Tokyo Institute of Technology, Tokyo, Japan, Dec. 5, 2003.

Poster presentations

- "Holographic Thermalization,"
  at the international conference *KMI Inauguration Conference on 'Quest for the Origin of Particles and the Universe'*, Nagoya University, Japan, Oct. 24, 2011.

Workshops attended[*3] (•) and extended visits (◦)

- *Supergravity 2019*, University of Padova, Italy, Sep. 12–13, 2019.
- ◦ String Theory Group, CEA Saclay, France, Sep. 9–11, 2019.
- ◦ String Theory Group, CEA Saclay, France, Mar. 13–15, 2019.
- *Black holes, quantum information, and space-time reconstruction*, CERN, Switzerland, Aug. 27–31, 2018.
- ◦ KEK, Japan, May 7–18, 2018.
- *Eurostrings 2018 – Strings, Geometry and Black Holes*, King's College London, United Kingdom, Apr. 9–13, 2018.
- *New flows and old black holes: Adventures in quantum gravity and holography – A conference in celebration of Nick Warner's 60th birthday*, CEA Saclay, Paris, France, Jun. 22–23, 2017.
- ◦ String Theory Group, CEA Saclay, France, Jun. 6–10, 2016.
- *Quantum Information in String Theory and Many-Body Systems*, Yukawa Institute for Theoretical Physics, Kyoto University, Japan, May. 23–Jun. 24, 2016.
- ◦ Center for Research in String Theory, Queen Mary University of London, UK, Apr. 18–22, 2016.
- ◦ Theoretical High Energy Physics Group, University of Southern California, USA, Mar. 23–30, 2016.
- *The Physical Society of Japan 71st Annual Meeting*, Tohoku Gakuin University, Sendai, Japan, Mar. 19–22, 2016.
- *The Physical Society of Japan 70th Annual Meeting*, Waseda University, Tokyo, Japan, Mar. 21–24, 2015.
- ◦ High Energy Theory Group, University of Padova, Italy, Feb. 23–27, 2015.
- *Strings and Fields*, Yukawa Institute for Theoretical Physics, Kyoto University, Jul. 22–26, 2014.
- *Holographic Vistas on Gravity and String*, Yukawa Institute for Theoretical Physics, Kyoto University, May 12–30, 2014.
- *Amsterdam String Workshop 2014*, University of Amsterdam, Netherlands, Jun. 30–Jul. 11, 2014.
- *Strings 2014*, Institute for Advanced Study, Princeton, USA, Jun. 23–27, 2014.

[*3] Other than the ones already listed above.

- String Theory Group, CEA Saclay, France, Jun. 2–20, 2014.

- *The Physical Society of Japan 69th Annual Meeting*, Tokai University, Japan, Mar. 27–30, 2014.

- *Black Holes and Quantum Information*, The Weizmann Institute of Science, Rehovot, Israel, Jan. 12–17, 2014.

- String Theory Group, CEA Saclay, France, Nov. 12–22, 2013.

- String Theory Group, University of Amsterdam, Netherlands, Oct. 14–Nov. 8, 2013.

- *Gravity – New perspectives from strings and higher dimensions*, The Centro de Ciencias de Benasque Pedro Pascual (CCBPP), Benasque, Spain, Jul. 15–26, 2013.

- *Strings 2013*, Sogang University, Seoul, Korea, Jun. 24-28, 2013.

- String Theory Group, CEA Saclay, France, Feb. 11–Mar. 8, 2013.

- *Yukawa International Seminar (YKIS) 2012 – From Gravity to Strong Coupling Physics*, Yukawa Institute for Theoretical Physics, Kyoto, Japan, Oct. 15–19, 2012.

- *Holographic Thermalization*, University of Leiden, Netherlands, Oct. 8–12, 2012.

- *Amsterdam String Workshop 2012*, University of Amsterdam, Netherlands, Jul. 2–17, 2012.

- String Theory Group, CEA Saclay, France, Jun. 18–29, 2012.

- *Black Holes and Information*, Kavli Institute for Theoretical Physics (KITP), University of California, Santa Barbara, May 21–25, 2012.

- *Bits, Branes, Black Holes*, Kavli Institute for Theoretical Physics (KITP), University of California, Santa Barbara, May 6–25, 2012.

- *KEK Theory Workshop 2012*, KEK, Japan, Mar. 3–7, 2012.

- String Theory Group, University of Amsterdam, Netherlands, Nov. 28–Dec. 9, 2011.

- String Theory Group, CEA Saclay, France, Nov. 10–18, 2011.

- *Holography and Singularities in String Theory and Quantum Gravity*, Aspen Center for Theoretical Physics, USA, Jul. 31–Aug. 21, 2011.

- *Three String Generations at IHÉS*, IHÉS, France, May. 16–20, 2011.

- String Theory Group, CEA Saclay, France, May 16–27, 2011.

- String Theory Group, University of Amsterdam, Netherlands, Apr. 18–May. 13, 2011.

- *Crete Conference On Gauge Theories And The Structure Of Spacetime*, The Orthodox Academy of Crete, Kolymvari, Crete, Greece, Sep. 11–Sep. 18, 2010.
- *String Theory Workshop 2010*, University of Amsterdam, Jun. 28–Jul. 9, 2010.
- *Strings 2010*, Texas A&M University, Texas, USA, Mar. 15-19, 2010.
- *Gravity – New perspectives from strings and higher dimensions*, The Centro de Ciencias de Benasque Pedro Pascual (CCBPP), Benasque, Spain, Jul. 13–17, 2009.
- *Strings 2009*, Pontificia Università San Tommaso D'Aquino, Rome, Italy, Jun. 22–26, 2009.
- *Strings 2008*, CERN, Switzerland, Aug. 18–23, 2008.
- *String Theory Workshop 2008*, University of Amsterdam, Jul. 7–11, 2008.
- *Eurostrings 2008*, University of Amsterdam, Jun. 30–Jul. 4, 2008.
- *Gravitational Thermodynamics and the Quantum Nature of Space Time*, Edinburgh, United Kingdom, Jun. 16–20, 2008.
- *Simons Workshop in Mathematics and Physics 2007,* C. N. Yang Institute for Theoretical Physics, Stony Brook University, Aug. 6–10, 2007.
- *Recent Advances in Black Hole Physics in String Theory,* Aspen Center for Physics, Aug. 21–Sep. 10, 2006.
- *Cargese Summer School — Strings and Branes: The present paradigm for gauge interactions and cosmology,* Institut d'Études Scientifiques de Cargèse, Corsica, France, May 22–Jun. 3, 2006.
  - Tata Institute of Fundamental Research (TIFR), Bombay, India, April 6–May 13, 2006.
- *Scanning New Horizons: GR Beyond 4 Dimensions,* Kavli Institute for Theoretical Physics (KITP), University of California, Santa Barbara, Feb. 20–24, 2006.
- *Strings 2005,* Fields Institute, University of Toronto, Jul. 11–16, 2005.
- *Spring School on Superstring Theory and Related Topics*, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, Mar. 14–22, 2005.
- *Workshop on Gravitational Aspects of String Theory,* Fields Institute, University of Toronto, Canada, May 2–6, 2005.
- *Conformal Field Theory Reunion Conference II,* Institute for Pure and Applied Mathematics, UCLA, Lake Arrowhead, Dec. 12–17, 2004.
- *Quantum Theory of Black Holes,* Ohio Center for Theoretical Science, The Ohio

State University, Sep. 17–19, 2004.

- *The Second Simons Workshop in Mathematics and Physics,* C. N. Yang Institute for Theoretical Physics, Stony Brook University, Aug. 9–27, 2004.
- *Prospects in Theoretical Physics (PiTP),* Institute for Advanced Study, Jul. 19–30, 2004.
- *Spring School on Superstring Theory and Related Topics*, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, Mar. 15–23, 2004.
- *Theoretical Advanced Study Institute (TASI)*, University of Colorado, Boulder, Jun. 1–27, 2003.
- *Matrix Models and Supersymmetric Yang-Mills Theories — First Reunion of the Conformal Field Theory Program,* Institute for Pure and Applied Mathematics, UCLA, Lake Arrowhead, Apr. 21–25, 2003.

Teaching and Related Experience

Formal classes taught at universities

2018–	Nagoya University undergraduate courses (G30 program, in English): "Analytical Mechanics I", "Analytical Mechanics II", "Quantum Mechanics I", "Fundamentals of Physics I", "Fundamental Physics Tutorial Ia".
2017–2018	"Physical Dynamics", second-year undergraduate lectures (33 lectures), Queen Mary University of London.
May 14–16, 2018	"Black hole microstates," special lectures at QG-ken, Nagoya University, Japan.
2016	"Synoptic Physics", third-year undergraduate tutorials (8 tutorials), Queen Mary University of London.
Jan. 26–28, 2015	"Black holes and Exotic Branes in String Theory," special lectures at Tokyo Institute of Technology, Japan.
Dec. 18–20, 2013	"Black hole spacetimes in string theory and supergravity," special lectures at Ibaraki University, Japan.
2013–2016	"Doubt astrophysics," Pocket Seminars at Department of Physics, Kyoto University, Japan.
2009, 2010	"String Theory," lectures at the University of Amsterdam, the Netherlands. Jointly taught with Prof. Kostas Skenderis.
2000–2004	Teaching Assistant, *Upper Division Courses in Quantum Mechanics; Lower Division Undergraduate Physics Labs.*, University of California, Los Angeles.

Other lectures at international schools, etc.

May 7–8, 2018	"Black hole microstates," special lectures at KEK, Japan.
Jan. 23–24, 2016	A set of lectures on "Branes and black holes in string theory and supergravity" at the international school *20th APCTP Winter School on Fundamental Physics*, APCTP, Pohang, Korea (invited).
Sep. 22–25, 2014	A set of lectures (1.5 hours × 4) on "Black Holes and Exotic Branes in String Theory" at the international school *Advanced String School 2014* (organized by the Institute of Physics, Bhubaneswar), Puri, India.
May 14–16, 2014	"Black hole spacetimes in string theory and supergravity," invited informal lectures, Tohoku University, Japan.
May 9, 2013	"Exotic branes," invited informal lectures, Tohoku University, Japan.
Nov.–Dec. 2011	A set of lectures (3 hours × 6) on "The AdS/CFT Correspondence" at *Amsterdam-Brussels-Paris Doctoral School on Quantum Field Theory, Strings and Gravity* (an international school sponsored by the International Solvay Institute).
Jun. 2011–	I supervised a reading club of Peskin and Schroeder, "*An Introduction to Quantum Field Theory*" by the master's course students at the particle theory group at Nagoya University.
Nov. 2008	A set of lectures on *Supersymmetric Gauge Theories* at *Amsterdam-Brussels-Paris Doctoral School on Quantum Field Theory, Strings and Gravity* (an international school sponsored by the International Solvay Institute).

Graduate students

- Yuki Kobayashi*, Yuki Miyashita, Takuro Saito (Nagoya University, MSc, 2019–2020)
- Nejc Čeplak (Queen Mary University of London, PhD course, 2017–2019)
- Minkyu Park (Yukawa Institute of Theoretical Physics, MSc and PhD courses, 2013–2018)
- Daniel Mayerson* (University of Amsterdam, PhD course, 2013–2015)

*: co-advisor / joint supervision

Student projects

2016–2018: Supervision of undergraduate and master's student projects, Queen Mary University of London.

Other activities

I also served on the PhD dissertation / Master thesis committee for Lorenzo Pieri (PhD, Univ. Paris, Mar. 26, 2018), Ardian N. Atmaja (PhD, Univ. Leiden., Oct. 26, 2010), Kristian Holsheimer (Master, Univ. of Amsterdam, Aug. 30, 2010), Balt van Rees (PhD, Univ. of Amsterdam, Sep. 7, 2010), Ingmar Kanitscheider (PhD, Univ. of Amsterdam, Dec. 18, 2009), Jan Manschot (PhD, Univ. of Amsterdam, Dec. 18, 2008).

Grants and Awards

- Grant-in-Aid for Scientific Research on Innovative Areas, Japan Society for the Promotion of Science (JSPS), 2017–2021. Project title: "New developments of gravity theory research in gravitational wave physics/astronomy" (17H06359), Co-Investigator.
- Editors' Suggestion, Physical Review Letters, vol. 117, 2016 (see [9]).
- Grants-in-Aid for Scientific Research (Type B), Japan Society for the Promotion of Science (JSPS), 2016–2020. Project title: "Microstructure of black holes and string theory" (16H03979). I am the principal investigator, with no co-investigators.
- Hakubi Researcher, Kyoto University, 2013–2017. Project title: "String theory and physics of black holes". I am the principal investigator, with no co-investigators.
- Grants-in-Aid for Young Scientists (Type B), Japan Society for the Promotion of Science (JSPS), 2012–2016. Project title: "Physics of exotic branes in string theory" (24740159). I am the principal investigator, with no co-investigators.
- Research Activity Start-up Grant, Japan Society for the Promotion of Science (JSPS), 2011–2012. Project title: "Physics of exotic branes in string theory" (23840017). I was the principal investigator, with no co-investigators. Switched in 2012 to Grants-in-Aid for Young Scientists (Type B) mentioned in the previous item.
- Marie Curie Intra-European Fellowship for Career Development (hosting institute: CERN), 2010–2011. Project title: "Toward Microphysics of the AdS/CFT Correspondence". I was the principal investigator, with no co-investigators. *
- Research Fellowship for Young Scientists, Japanese Society for the Promotion of Science (JSPS), 2007-2010. Project title: "Understanding black holes in string theory". *
- Sherman Fairchild Prize Fellowship, California Institute of Technology, 2004–2007.
- Research Fellowship for Young Scientists, Japanese Society for the Promotion of Science (JSPS), 2004-2007. Project title: "On the relation between supersym-

metric gauge theories and matrix models." *

- Heiwa Nakajima Foundation Scholarship (a Japanese foundation scholarship), 2000–2002.

* I was awarded these fellowships but declined them because I accepted other offers.

Organizing

- *YITP Long term workshop 2018: "New Frontiers in String Theory"*, Yukawa Institute for Theoretical Physics, Kyoto, Jul. 2–Aug. 3, 2018: organizer.
- *YITP molecule-type workshop on "Recent Developments in Microstructures of Black Holes"*, Yukawa Institute for Theoretical Physics, Nov. 20–Dec. 1, 2017: main organizer.
- *YITP Long term workshop 2016: "Quantum Information in String Theory and Many-body Systems"*, Yukawa Institute for Theoretical Physics, Kyoto, May 23–Jun. 24, 2016: organizer.
- *Yukawa International Seminar 2016 (YKIS2016): "Quantum Matter, Spacetime and Information"*, Yukawa Institute for Theoretical Physics, Kyoto, Jun. 13–17, 2016: organizer.
- *Yukawa International School: "School on Strings and Fields"*, Yukawa Institute for Theoretical Physics, Kyoto, Feb. 29–Mar. 4, 2016: organizer.
- *YITP Workshop on "Microstructures of black holes"*, Yukawa Institute for Theoretical Physics, Kyoto, Nov. 23–27, 2015: main organizer.
- *YITP Public Lectures "100 Years of General Relativity and Black Holes – Frontiers of Black Hole Research"*, Yukawa Institute for Theoretical Physics, Kyoto, Nov. 22, 2015: main organizer.
- *Long-term workshop on "Holographic vistas in gravity and strings"*, Yukawa Institute for Theoretical Physics, Kyoto, May 11–Jul. 11, 2014: organizer.
- *YITP molecule-type workshop on "Exotic structures of spacetime"*, Yukawa Institute for Theoretical Physics, Mar. 10–21, 2014: main organizer.
- *Particle Theory Group Seminars*, Yukawa Institute for Theoretical Physics, 2013–present: seminar organizer.
- *KMI/GCOE Workshop on "Strong Coupling Gauge Theories in the LHC Perspective (SCGT 12)"*, Nagoya University, Dec. 4–7, 2012, Local organizing committee.
- *Shoichi Sakata Centennial Symposium (SAKATA100)*, Nagoya University, Oct. 27–28, 2011: Local organizing committee.
- *KMI Inauguration Conference on "Quest for the Origin of Particles and the Universe" (KMIIN)*, Nagoya University, Oct. 24–26, 2011: Local organizing com-

mittee.

- *Nagoya University GCOE Spring School 2011 — Theory, Gravity, and String Theory*, Nagoya University, Mar. 21–24, 2011: Local organizing committee.
- *String Theory Group Seminars*, Nagoya University, 2010–2013: seminar organizer.
- *String Theory Group Seminars*, University of Amsterdam, 2007–2008, 2009–2010: seminar organizer.
- *String Theory Group Journal Club*, University of Amsterdam, 2007–2008: seminar organizer.
- *High Energy Theory Seminars*, California Institute of Technology, 2005–2006: seminar organizer.

Peer review

Scientific journals

I served as a peer reviewer for the following journals:

Class. Quant. Grav., Europhysics Letters, Int. J. Mod. Phys. A, JHEP, Nucl. Phys. B, Phys. Lett. B, Phys. Rev. D, Phys. Rev. Lett., Prog. Theor. Expr. Phys.

Research grant proposals

I served as a peer reviewer for the following funding organizations:

- National Research Foundation (NRF), South Africa.
- Research Council KU Leuven, Belgium
- Netherlands Organisation for Scientific Research (NWO), Netherlands

Outreach

- A public lecture "What is string theory" as a part of Uchu Kouza (Lectures on the Universe) 2021 — Origin of the universe and matter, Nagoya, NHK, May 19, 2021.
- A public talk "What's inside a black hole" at Studium Generale, Nagoya University, January 10, 2020.
- A public lecture "What's inside a black hole" as a part of Uchu Kouza (Lectures on the Universe) 2019 — Empty Universe, Nagoya, NHK, September 4, 2019.
- A taster lecture at the QMUL University Taster Days, April 11, 2018.

- A public lecture "What's inside a black hole" at QMUL, March 22, 2018.
- Organized public lectures "100 Years of General Relativity and Black Holes — The Frontiers of Black Hole Theory" at the Yukawa Institute for Theoretical Physics, Kyoto University, and gave a public lecture there, November 22, 2015.
- Served as a guide to the Yukawa Institute for Theoretical Physics at the Donor Appreciation Day for the Kyoto University Fund, July 6, 2015.
- Presentation at the Lorentz Festival, Kyoto University, May 15, 2015.
- Discussant in The *2nd Hakubi Symposium — Facing the Other, Facing the Self: A Kyoto University Dialogue on Multicultural Society*, Mar. 6, 2014.
- Prepared a part of a public talk given by Prof. S. Nojiri on the research activities at Kobayashi-Maskawa Institute at Nagoya University Festival, Jun. 9, 2012.
- Wrote an invited review article for the membership journal of Japanese Physical Society in 2006 [35].

Publications

In my field of research (theoretical high-energy physics), the author names are in alphabetical order, independent of the contribution. Position in the author list has no implication as to authors' role in the research.

[1] S. Hirano, T. Nakajima and M. Shigemori, "$T\bar{T}$ Deformation of Stress-Tensor Correlators from Random Geometry," [arXiv:2012.03972 [hep-th]].

[2] D. R. Mayerson and M. Shigemori, "Counting D1-D5-P Microstates in Supergravity," SciPost Phys. **10** (2021), 018 [arXiv:2010.04172 [hep-th]].

[3] S. Hirano and M. Shigemori, "Random Boundary Geometry and Gravity Dual of $T\bar{T}$ Deformation," JHEP **2020**, 108 (2020) [arXiv:2003.06300 [hep-th]].

[4] M. Shigemori, "Superstrata," Gen. Relativ. Gravit. **52**, 51 (2020) [arXiv:2002.01592 [hep-th]].
(Editor's Choice (Invited Review: State of the Field)).

[5] M. Shigemori, "Counting Superstrata," JHEP **1910**, 017 (2019) [arXiv:1907.03878 [hep-th]].

[6] N. Čeplak, R. Russo and M. Shigemori, "Supercharging Superstrata," JHEP **1903**, 095 (2019) [arXiv:1812.08761 [hep-th]].

[7] I. Bena, S. Giusto, E. J. Martinec, R. Russo, M. Shigemori, D. Turton and N. P. Warner, "Asymptotically-flat supergravity solutions deep inside the black-hole regime," JHEP **1802**, 014 (2018) [arXiv:1711.10474 [hep-th]].

[8] J. J. Fernandez-Melgarejo, M. Park and M. Shigemori, "Non-Abelian Supertubes," JHEP **1712**, 103 (2017) [arXiv:1709.02388 [hep-th]].

[9] I. Bena, S. Giusto, E. J. Martinec, R. Russo, M. Shigemori, D. Turton and N. P. Warner, "Smooth horizonless geometries deep inside the black-hole regime," Phys. Rev. Lett. **117**, 201601 (2016) [arXiv:1607.03908 [hep-th]]. Selected as a PRL Editors' Suggestion.

[10] M. Park and M. Shigemori, "Codimension-2 Solutions in Five-Dimensional Supergravity," JHEP **1510**, 011 (2015) [arXiv:1505.05169 [hep-th]].

[11] S. Hirano, M. Honda, K. Okuyama and M. Shigemori, "ABJ Theory in the Higher Spin Limit," JHEP **08**, 174 (2016) [arXiv:1504.00365 [hep-th]].

[12] I. Bena, S. Giusto, R. Russo, M. Shigemori and N. P. Warner, "Habemus Superstratum! A constructive proof of the existence of superstrata," JHEP **1505**, 110 (2015) [arXiv:1503.01463 [hep-th]].

[13] I. Bena, M. Shigemori and N. P. Warner, "Black-Hole Entropy from Supergravity Superstrata States," JHEP **10**, 140 (2014) [arXiv:1406.4506 [hep-th]].

[14] S. Hirano, K. Nii and M. Shigemori, "ABJ Wilson loops and Seiberg Duality," Prog. Theor. Exper. Phys. 113B04 (2014) [arXiv:1406.4141 [hep-th]].

[15] J. de Boer, D. R. Mayerson and M. Shigemori, "Classifying Supersymmetric Solutions in 3D Maximal Supergravity," Class. Quant. Grav. **31**, 235004 (2014) [arXiv:1403.4600 [hep-th]].

[16] M. Shigemori, "Perturbative 3-charge microstate geometries in six dimensions," JHEP **10**, 169 (2013) [arXiv:1307.3115 [hep-th]].

[17] M. Shigemori, "Holographic thermalization," Proceedings of the KMI Inauguration Conference 'Quest for the Origin of Particles and the Universe,' Nagoya University, Nagoya, Japan, 24–26 October 2011, pp.252–257.

[18] M. Shigemori, "Exotic branes and black hole microstates," Int. J. Mod. Phys. Conf. Ser. **21**, 77 (2013) (Proceeding of the International Conference "Progress in Quantum Field Theory and String Theory", Osaka City University, Japan, April 3–7, 2012).

[19] H. Awata, S. Hirano and M. Shigemori, "The Partition Function of ABJ Theory," Prog. Theor. Exper. Phys., 053B04 (2013) [arXiv:1212.2966 [hep-th]].

[20] J. de Boer and M. Shigemori, "Exotic Branes in String Theory," Phys. Rep., **532**, 65 (2013) [arXiv:1209.6056 [hep-th]].

[21] I. Bena, S. Giusto, M. Shigemori and N. P. Warner, "Supersymmetric Solutions in Six Dimensions: A Linear Structure," JHEP **03**, 084 (2012) [arXiv:1110.2781 [hep-th]].

[22] I. Bena, B. D. Chowdhury, J. de Boer, S. El-Showk and M. Shigemori, "Moulting Black Holes," JHEP **03**, 094 (2012) [arXiv:1108.0411 [hep-th]].

[23] I. Bena, J. de Boer, M. Shigemori, N. P. Warner, "Double, Double Supertube Bubble," JHEP **10**, 116 (2011) [arXiv:1107.2650 [hep-th]].

[24] V. Balasubramanian, A. Bernamonti, J. de Boer, N. Copland, B. Craps, E. Keski-Vakkuri, B. Müller, A. Schäfer, M. Shigemori, W. Staessens, "Holographic Thermalization," Phys. Rev. D **84**, 026010 (2011) [arXiv:1103.2683 [hep-th]].

[25] V. Balasubramanian, A. Bernamonti, J. de Boer, N. Copland, B. Craps, E. Keski-Vakkuri, B. Müller, A. Schäfer, M. Shigemori, W. Staessens, "Thermalization of Strongly Coupled Field Theories," Phys. Rev. Lett. **106**, 191601 (2011) [arXiv:1012.4753 [hep-th]].

[26] J. de Boer and M. Shigemori, "Exotic branes and non-geometric backgrounds," Phys. Rev. Lett. **104**, 251603 (2010) [arXiv:1004.2521 [hep-th]].

[27] A. N. Atmaja, J. de Boer and M. Shigemori, "Holographic Brownian Motion and Time Scales in Strongly Coupled Plasmas," Nucl. Phys. B **880**, 23–75 (2014) [arXiv:1002.2429 [hep-th]].

[28] M. Shigemori, "Brownian motion in AdS/CFT," in Proceedings of the Tenth

Workshop on Non-Perturbative Quantum Chromodynamics, Paris, 2009, SPIRES eConf C09-06-08.3.

[29] J. de Boer, V. E. Hubeny, M. Rangamani and M. Shigemori, "Brownian motion in AdS/CFT," JHEP **07**, 094 (2009) [arXiv:0812.5112 [hep-th]].

[30] L. Hollands, J. Marsano, K. Papadodimas and M. Shigemori, "Nonsupersymmetric Flux Vacua and Perturbed $\mathcal{N} = 2$ Systems," JHEP **10**, 102 (2008) [arXiv:0804.4006 [hep-th]].

[31] J. Marsano, K. Papadodimas and M. Shigemori, "Off-shell M5 Brane, Perturbed Seiberg-Witten Theory, and Metastable Vacua," Nucl. Phys. B **804**, 19–69 (2008) [arXiv:0801.2154 [hep-th]].

[32] N. Iizuka and M. Shigemori, "Are There Four-Dimensional Small Black Rings?," Phys. Rev. D **77**, 044044 (2008) [arXiv:0710.4139 [hep-th]].

[33] J. Marsano, K. Papadodimas and M. Shigemori, "Nonsupersymmetric brane / antibrane configurations in type IIA and M theory," Nucl. Phys. B **789**, 294–361 (2008) [arXiv:0705.0983 [hep-th]].

[34] A. Dabholkar, N. Iizuka, A. Iqubal, A. Sen and M. Shigemori, "Spinning strings as small black rings," JHEP **0704**, 017 (2007) [arXiv:hep-th/0611166].

[35] M. Shigemori, "Towards Statistical Mechanical Understanding of Black Holes," Nihon Butsuri Gakkaishi (Membership Journal of Japanese Physical Society) **61**, 506 (2006), in Japanese.

[36] A. Dabholkar, N. Iizuka, A. Iqubal and M. Shigemori, "Precision Microstate Counting of Small Black Rings," Phys. Rev. Lett. **96**, 071601 (2006) [arXiv:hep-th/0511120].

[37] V. Balasubramanian, P. Kraus and M. Shigemori, "Massless black holes and black rings as effective geometries of the D1-D5 system," Class. Quant. Grav. **22**, 4803–4837 (2005) [arXiv:hep-th/0508110].

[38] N. Iizuka and M. Shigemori, "A note on D1-D5-J system and 5D small black ring," JHEP **0508**, 100 (2005) [arXiv:hep-th/0506215].

[39] M. Shigemori, "The Geometry/Gauge Theory Duality and the Dijkgraaf–Vafa Conjecture," Ph.D. thesis (University of California, Los Angeles) [arXiv:hep-th/0409038].

[40] C. Ahn, B. Feng, Y. Ookouchi and M. Shigemori, "Supersymmetric gauge theories with flavors and matrix models," Nucl. Phys. B **698**, 3–52 (2004) [arXiv:hep-th/0405101].

[41] K. Intriligator, P. Kraus, A. V. Ryzhov, M. Shigemori and C. Vafa, "On low rank classical groups in string theory, gauge theory and matrix models," Nucl. Phys. B **682**, 45–82 (2004) [arXiv:hep-th/0311181].

[42] P. Kraus, A. V. Ryzhov and M. Shigemori, "Loop equations, matrix models,

and $\mathcal{N} = 1$ supersymmetric gauge theories," JHEP **0305**, 059 (2003) [arXiv:hep-th/0304138].

[43] P. Kraus and M. Shigemori, "On the matter of the Dijkgraaf-Vafa conjecture," JHEP **0304**, 052 (2003) [arXiv:hep-th/0303104].

[44] P. Kraus, A. Ryzhov and M. Shigemori, "Strings in noncompact spacetimes: Boundary terms and conserved charges," Phys. Rev. D **66**, 106001 (2002) [arXiv:hep-th/0206080].

[45] P. Kraus and M. Shigemori, "Non-commutative instantons and the Seiberg-Witten map," JHEP **0206**, 034 (2002) [arXiv:hep-th/0110035].

[46] M. Shigemori, A. Shimizu, T. Brandes and J. Inoue, "Strong enhancement of superconducting correlation in a two-component fermion gas," J. Phys. Soc. Jpn. **68**, 2194–2197 (1999); Physica B **284–288**, 443–444 (2000) [arXiv:cond-mat/9902079]. $*$ This paper is in condensed matter physics and the author names are ordered according to contribution.