Hiroyasu Satoh

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Born: September 15, 1976 — Abashiri, Hokkaido, Japan
Nationality: Japanese

Current position

Associate Professor, Nippon Institute of Technology

Areas of specialization

Differential Geometry in Mathematics

Appointments held

2004-2008	Research Associate, University of Tsukuba, Japan
2009	Temporary Lecturer, Shibaura Institute of Technology, Japan
2009-2013	Assistant Professor, Tokyo Denki University, Japan
2014-Now	Associate Professor, Nippon Institute of Technology, Japan

Education

1999	B.A. in Education, Tokyo Gakugei University, Japan
2001	M.A. in Science, University of Tsukuba, Japan
2004	Ph.D in Science, University of Tsukuba, Japan

Membership of professional bodies

Member, Mathematical Society of Japan
Member, Japan Society for Symbolic and Algebraic Computation
Member, Mathematics Education Society of Japan

Grants, honors & awards

2015-2017 Grant-in-Aid for Young Scientists (B), Research Project Number 15K17545
"Geometry of barycenter map on Hadamard manifolds admitting Busemann-Poisson kernel"

Publications

Journal articles

2002 M. Itoh and H. Satoh, "Isolation of the Weyl conformal tensor for Einstein manifolds", *Proc. Japan Acad. Ser. A* **78** (2002), pp.140–143

2004 H. Satoh, "Compact almost Kähler manifolds with divergence-free Weyl comformal tensor", *Ann. Global Anal. Geom.* **26** (2004), pp.107–116.

2005 H. Satoh, "4-dimensional almost Kähler manifolds and L^2-scalar curvature functional", *Differential Geom. Appl.* **23** (2005), pp.114–127.

2008 M. Itoh, H. Satoh and Y. Shishido, "A note on the Fisher information metric and heat kernels", *Int. J. Pure Appl. Math.* **46** (2008), pp.347–353.

2010 M. Itoh and H. Satoh, "Information geometry of Poisson kernels on Damek-Ricci spaces", *Tokyo J. Math.* **33** (2010), pp.129–144.

2011 M. Itoh and H. Satoh, "The Fisher information metric, Poisson kernels and harmonic maps", *Differential Geom. Appl.* **29, Supplement 1** (2011), pp.S107–S115.

2013 M. Itoh and H. Satoh, "Horospheres and hyperbolic spaces", *Kyushu J. Math.* **67** (2013), pp.309–326.

2014 M. Itoh, H. Satoh and Y.J. Suh, "Horospheres and hyperbolicity of Hadamard manifolds", *Differential Geom. Appl.* **35** Supplement (2014), pp.50–68.

2015a M. Itoh and H. Satoh, "Geometry of Fisher information metric and the barycenter map", *Entropy* **17** (2015), pp.1814–1849.

2015b M. Itoh and H. Satoh, "Information geometry of busemann-barycenter for probability measures", *Intern. J. Math.* **26** (2015).

2016 M. Itoh, S. H. Kim, J. H. Park and H. Satoh, "Harmonic Hadamard manifolds of prescribed Ricci curvature and volume entropy", *Kyushu J. Math.* **70** (2016), pp.267–280.

2019 M. Itoh and H. Satoh, "Harmonic Hadamard manifolds and Gauss hypergeometric differential equations", *Publ. Res. Inst. Math. Sci.* **55** (2019), pp.531–564.

2020 M. Itoh and H. Satoh, "Harmonic manifolds of hypergeometric type and spherical Fourier transform", *Differential Geom. Appl.* **71** (2020).

2021 M. Itoh and H. Satoh, "Information geometry of the space of probability measures and barycenter maps", *Sugaku Expositions* **34** (2021), pp.231–253.

2023 M. Itoh and H. Satoh, "Geometric mean of probability measures and geodesics of Fisher information metric", *Math. Nachr.* **296** (2023), pp.1901–1927.

2025 H. Satoh, "A note on the volume entropy on harmonic manifolds of hypergeometric type", *Results Math.* **80** (2025).

Teaching

Linear Algebra
Calculus
Differential Equations
Vector Analysis
Complex Analysis
Probability and Statistics

Service to the profession

2015-2023 Information System Operation Committee Member, Mathematical Society of Japan
2020-2024 Examination Committee Member of Civil Service Examination (Examination for Comprehensive Service), National Personnel Authority, Government of Japan

Certifications and Licenses

1989 The League for Soroban Education of Japan, Level 1 Certification in Abacus Calculation (Soroban)
2003 Japanese junior high school teacher's license (mathematics)
2003 Japanese high school teacher's license (mathematics)