

Curriculum Vitae

Hiroshi Sakai,
Graduate School of System Informatics,
Kobe University, Japan

Personal Information

Name : Hiroshi Sakai
Sex : male
Date of Birth : Dec. 5, 1977
Place of Birth : Wakayama, Japan
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Research Interest

Research field : Mathematics, Axiomatic Set Theory
Key words : Large Cardinal Axiom, Reflection Principle

Education

B.A. : Department of Mathematics, University of Tokyo.
Mar. 2000.
M.A. : Graduate School of Mathematical Sciences, University of Tokyo.
Mar. 2002. (Thesis title : Distributivity of $(^{<\kappa}\kappa)^L$ and 0^\sharp)
Ph.D. : Graduate School of Human Informatics, Nagoya University.
Dec. 2005. (Thesis title : On large cardinal properties of ideals)

Employment

Apr.2005 - Sep.2008 : Part time Lecturer, Aichi Institute of Technology.
Apr.2006 - Mar.2007 : Part time Lecturer, Chukyo University.
Oct.2006 - Sep.2008 : Part time Lecturer, Aichi Prefectural University.
Oct.2008 - Sep.2010 : Research Associate, Kobe University.
Oct.2010 - Oct.2013 : Lecturer, Kobe University.
Nov.2013 - : Associate Professor, Kobe University.

Grants and Research Projects

Apr.2010 - June 2010 : Grant for Exchange Visit to University of Paris-Diderot,
Research Net Work Programme, New Frontiers of Infinity, ESF.
Apr.2011 - Mar.2014 : Grant-in-Aid for Encouragement of Young Scientists (B), JSPS,
On reflection principles at small uncountable cardinals.

Conference Organization

- [1] Young Logicians Gathering in Japan 2011, Osaka (Japan), Dec. 2011. (Organizer)
- [2] RIMS Set Theory Workshop 2012 "Forcing extensions and large cardinals", Kyoto (Japan), Dec. 2012. (Organizer)
- [3] Workshop on Mathematical Logic on the Occasion of Sakaé Fuchino's 60th Birthday, Kobe (Japan), Nov. 2014. (Co-organizer)
- [4] The 8th Young Set Theory Workshop, Jerusalem (Israel), Oct. 2015. (Program committee)
- [5] The 2nd Pan Pacific International Conference on Topology and Applications, Busan (Korea), Nov. 2017. (Co-organizer of the set theory session)

Refereed Papers

- [1] H. Sakai, *Generalized Prikry forcing and iteration of generic ultrapowers*, Mathematical Logic Quarterly **51**, no.5, pp.507-523, 2005.
- [2] H. Sakai, *Semiproper ideals*, Fundamenta Mathematicae **186** (2005), no.3, pp.251–267.
- [3] H. Sakai, *Semistationary and stationary reflection*, Journal of Symbolic Logic **73** (2008), no.1, pp.181-192.
- [4] H. Sakai, *On preservation and reflection of stationary subsets of $\mathcal{P}_\kappa\lambda$ when $\text{cof}(\lambda) < \kappa$* , the Proceedings of the 10th Asian Logic Conference, pp.271–299, World Sci. Publ., 2010.
- [5] H. Sakai, *Partial square at ω_1 is implied by MM but not by PFA*, Fundamenta Mathematicae 215 (2011), pp.109–131.
- [6] M. Kikuchi, T. Kurahashi and H. Sakai, *On proofs of the incompleteness theorems based on Berry's paradox by Vopenka, Chaitin, and Boolos*, Mathematical Logic Quarterly 58 (2012), no.4-5, pp.307–316.
- [7] H. Sakai, *Chang's conjecture and weak square*, Archive for Mathematical Logic 52 (2013), no.1-2, pp.29–45.
- [8] H. Sakai and B. Veličković, *Stationary reflection principles and two cardinal tree properties*, Journal of the Institute of Mathematics of Jussieu 14 (2015), no.1, pp.69–85.
- [9] H. Sakai, *Simple proofs of SCH from reflection principles without using better scales*, Archive for Mathematical Logic 54 (2015), no.5, pp.639–647.

- [10] J. Bagaria, M. Magidor and H. Sakai, *Reflection and indescribability in the constructible universe*, Israel Journal of Mathematics 208 (2015), pp.1–11.
- [11] H. Minami and H. Sakai, *Katětov and Katětov-Blass orders on F_σ -ideals*, Archive for Mathematical Logic 55 (2016), no.7, pp.883–898.
- [12] S. D. Friedman, S. Fuchino and H. Sakai, *On the set-theoretic multiverse*, in Sets and Computation, Lecture Note Series 33, Institute for Mathematical Sciences, National University of Singapore, pp.25–44, 2017.
- [13] H. Sakai, *On Katětov and Katětov-Blass orders on analytic P -ideals and Borel ideals*, to appear in Archive for Mathematical Logic.

Unrefereed Papers

- [1] S. Fuchino, M. Karato, H. Sakai and T. Usuba, *${}^\kappa\kappa$ in light of Tukey ordering*, RIMS Kokyuroku no.1471, pp.19-34, 2006.
- [2] H. Sakai, *On preservation and reflection of stationary subsets of $\mathcal{P}_\kappa\lambda$* , RIMS Kokyuroku no.1530, pp.82-95, 2007.
- [3] H. Sakai, *Partial stationary reflection in $\mathcal{P}_{\omega_1\omega_2}$* , RIMS Kokyuroku no.1595, pp.47-62, 2008.
- [4] H. Sakai, *On standard model of Martin's Maximum*, RIMS Kokyuroku no.1754, pp.97-107, 2011.
- [5] S. Fuchino and H. Sakai, *On reflection and non-reflection of countable list-chromatic number of graphs*, RIMS Kokyuroku no.1790, pp.31–44, 2012.
- [6] H. Sakai, *Note on covering and approximation properties*, RIMS Kokyuroku no.1949, pp.81–88, 2015.

Invited Talks

- [1] *On large cardinal properties of ideal related to forcing*, Annual Meeting of Mathematical Society of Japan, Osaka City University, Osaka (Japan), Sep. 2006. (Special Invited Talk)
- [2] *Levy collapse of supercompact cardinals and precipitousness of ideals over ω_1* , Young Researchers in Set Theory Workshop 2009, Centre de Recerca Matemàtica, Barcelona (Spain), Apr. 2009.
- [3] *Reflection principles and large cardinals*, International conference Japan-Mexico on topology and its applications, Universidad de Colima, Colima (Mexico), Sep. 2010. (Plenary Talk)

- [4] *Fragments of Martin's Maximum and weak square*, ASL 2012 North American Annual Meeting, University of Wisconsin-Madison, Madison (America), Apr. 2012.
- [5] *Consequences of Martin's Maximum and weak square*, Workshop on Forcing Axioms and their Applications, Fields Institute, Toronto (Canada), Oct. 2012.
- [6] *Stationary and semi-stationary reflection principles*, Annual Meeting of Mathematical Society of Japan, Kyoto University, Kyoto (Kyoto), Mar. 2013.
- [7] *Separation of $MA^+(\sigma\text{-closed})$ from reflection principles*, International Conference on Topology and Geometry 2013, Shimane University, Shimane (Japan), Sep. 2013.
- [8] *Proof of SCH from reflection principles without using scales*, IMS Workshop "Sets and Computations", National University of Singapore, Singapore (Singapore), Apr. 2015.
- [9] *Stationary reflection principles and two cardinal tree properties*, BLAST 2015, University of North Texas, Denton (America), June 2015.
- [10] *Cofinality of classes of ideals with respect to Katetov and Katetov-Blass orders*, Computability Theory and Foundation of Mathematics 2015, Tokyo Institute of Technology, Tokyo (Japan), Sep. 2015.
- [11] *Remarks on Katetov(-Blass) orders on Borel ideals*, 1st Pan Pacific International Conference on Topology and Applications, Minnan Normal University, Zhangzhou (China), Nov. 2015.
- [12] *On models generated by uncountable indiscernible sequences*, The 15th Asian Logic Conference, Center for Applications of Mathematical Principles, Daejeon (Korea), Jul. 2017.
- [13] *On models generated by uncountable indiscernible sequences*, The 14th International Workshop in Set Theory, CIRM, Marseille (France), Oct. 2017.

Other presentations

- [1] *Generalized Prikry forcing and iteration of generic ultrapowers*, RIMS Set Theory Workshop 2003, Kyoto University, Kyoto (Japan), Oct. 2003.
- [2] *On some properties of ideals*, RIMS Set Theory Workshop 2004, Kyoto University, Kyoto (Japan), Oct. 2004.
- [3] *On stationary reflection principle*, RIMS Set Theory Workshop 2006, Kyoto University, Kyoto (Japan), Oct. 2006.

- [4] *Local stationary reflection*, RIMS Set Theory Workshop 2007, Kyoto University, Kyoto (Japan), Nov. 2007.
- [5] *Partial square and forcing axioms*, RIMS Set Theory Workshop 2008, Kyoto University, Kyoto (Japan), Aug. 2008.
- [6] *On partial stationary reflection in $\mathcal{P}_\kappa\lambda$* , the 10th Asian Logic Conference, Kobe University, Kobe (Japan), Sep. 2008.
- [7] *Partial version of stationary reflection and square*, the 2nd European Set Theory Meeting, Bedlewo (Poland), July 2009. (Poster)
- [8] *Semi-stationary reflection, stationary reflection and combinatorics*, RIMS Set Theory Workshop 2010, Kyoto University, Kyoto (Japan), Oct. 2010.
- [9] *Chang's Conjecture and weak square*, RIMS Set Theory Workshop 2011, Kyoto University, Kyoto (Japan), Oct. 2011.
- [10] *Chag's Conjecture and weak square*, the 12th Asian Logic Conference, Victoria University of Wellington, Wellington (New Zealand), Dec. 2011.
- [11] *n -stationary and Π_{n-1}^1 -indescribable sets*, RIMS Set Theory Workshop 2013, Kyoto University, Kyoto (Japan), Sep. 2013.
- [12] *Separatiion of $MA^+(\sigma$ -closed) from reflection principles*, ESI Workshop "Forcing and Large Cardinals", Ervin Schrödinger Institute, Vienna (Austria), Sep. 2013.
- [13] *Proof of SCH from reflection principles without using better scales*, RIMS Set Theory Workshop 2014, Kyoto Unviersity, Kyoto (Japan), Nov. 2014.
- [14] *On monadic second order theory of ω_2* , JSPS-NUS Joint Workshop in Mathematical Logic and Foundations of Mathematics, Kanazawa (Japan), Mar. 2015.
- [15] *Covering and approximation properties of ultrapowers*, RIMS Set Theory Workshop 2015, Kyoto University, Kyoto (Japan), Sep. 2015.
- [16] *On strong negation of FRP*, RIMS Set Theory Workshop 2016, Kyoto University, Kyoto (Japan), Nov. 2016.