

Faculty of Science

Nara Women's University

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Message from the Dean YAMAUCHI Shigeo



Greetings, everyone. This is Yamauchi, the dean of the Faculty of Science. I specialize in astrophysics. I use X-rays to observe space -- the same rays as those used in radiography .

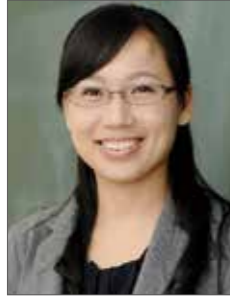
The Faculty of Science undertakes education and research in the natural sciences. There are many things around us, and various phenomena occur. What is the mechanism and structure of the various things that exist in nature? And how do the various phenomena in nature occur? There must be some reason behind them. Natural science aims to understand the mechanism and structure of nature and elucidate the laws of the natural world. The scope of this exploration includes not only what occurs at the level of our daily lives, but also topics ranging from the microscopic world, such as that of elementary particles, to the macro scale of the outermost edge of the universe. We explore them from various perspectives, including mathematics, physics, chemistry, biology, and environmental sciences. The new knowledge provided by the exploration of natural sciences is not limited to satisfying our intellectual curiosity, but it also enriches our lives through application to new sciences and technologies.

Exploring the natural sciences is driven by a sense of wonderment that fills one with the "why" and "how" questions and a curiosity and desire to know the answers to those questions. We will then examine the phenomena in detail through experiments and observations, discover the laws, and construct theories to explain them. Here, it is necessary to look closely at a phenomenon occurring until one sees through its nature and

essence and to mobilize all the knowledge that one possesses to think logically about why it occurs. Such an exploration leads to an exciting world filled with moments that moves one to exclaim "I understand!" when answers are found and the exhilarating moments of discovering new facts. In your studies at the Faculty of Science, Nara Women's University, I hope that you will acquire the basic knowledge necessary for inquiry activities, the ability to think logically, and the ability to solve problems and experience the joy of natural science.

As one of the only two national women's universities in Japan, Nara Women's University has produced several female human resources in society, contributing to the realization of a society in which men and women can respect one another and fully express their individuality and abilities. However, unfortunately, the proportion of women in the science and technology sector in Japan is still low. Therefore, we are making various efforts to support female researchers to improve the educational research environment. Under such circumstances, the Faculty of Science is engaged in education and research with the mission of sending out to society such human beings as those that can work as leaders in solving the challenges of the next generation through their acquired skills and knowledge in the natural sciences.

Here in Nara, with its abundant nature, rich history, and an environment filled with calmness, as well as in a women-friendly educational and research environment, let us engage in the exploration of the natural sciences together.



Three-manifold topology, knot theory

JANG Yeonhee / Associate Professor

yeonheejang@cc.nara-wu.ac.jp

EDUCATION: 2011 Division of Mathematics, Graduate School of Sciences, Hiroshima University
2008 Division of Mathematics, Graduate School of Sciences, Osaka University

ACADEMIC DEGREES: Ph.D. Hiroshima University

SUBJECT OF RESEARCH:

3-manifold, knots and links

SELECTED PUBLICATIONS:

1. Double branched covers of tunnel number one knots

Jang Y, Paoluzzi L.

Geom. Dedicata 211: 129-143 (2021)

DOI: 10.1007/s10711-020-00543-5

2. Meridional rank and bridge number for a class of links

Boileau M, Jang Y, Weidmann R.

Pacific J. Math. 292(1): 61-80 (2018)

DOI: 10.2140/pjm.2018.292.61

3. A knot with destabilized bridge spheres of arbitrarily high bridge number

Jang Y, Kobayashi T, Ozawa M, Takao K.

J. London Math. Soc., 93(2): 379-396 (2016)

DOI: 10.1112/jlms/jdw004

4. Heegaard splittings of distance exactly n

Ido A, Jang Y, Kobayashi T.

Algebr. Geom. Topol., 14(3): 1395-1411 (2014)

DOI: 10.2140/agt.2014.14.1395

5. Distance of bridge surfaces for links with essential meridional spheres

Jang Y.

Pacific J. Math., 267(1): 121-130 (2014)

DOI: 10.2140/pfm.2014.267.121



Three-manifold topology; Geometry of knots and links

KOBAYASHI Tsuyoshi / Professor

tsuyoshi@cc.nara-wu.ac.jp

EDUCATION: 1986 Graduate School of Science, Osaka University
1981 Faculty of Science, Osaka University

ACADEMIC DEGREES: Ph.D. Osaka University

SUBJECT OF RESEARCH:

Low dimensional topology, 3-manifold, knot

SELECTED PUBLICATIONS:

1. A knot with destabilized bridge spheres of arbitrarily high bridge number

Jang Y, Kobayashi T, Ozawa M, Takao K.

J. London Math. Soc., 93(2): 379-396 (2016)

DOI: 10.1112/jlms/jdw004

2. Strong cylindricality and the monodromy of bundles

Ichihara K, Kobayashi T, Rieck Y.

Proc. Amer. Math. Soc., 143: 3169-3176 (2015)

DOI: 10.1090/S0002-9939-2015-12473-2

3. Hyperbolic volume and Heegaard distance

Kobayashi T, Rieck Y.

Comm. Anal. Geom., 22(2): 247-268 (2014)

DOI: 10.4310/CAG.2014.v22.n2.a3

4. Heegaard splittings of distance exactly n

Ido A, Jang Y, Kobayashi T.

Algebr. Geom. Topol., 14(3): 1395-1411 (2014)

DOI: 10.2140/agt.2014.14.1395



Geometry and Topology

KATAGIRI Minyo / Associate Professor

katagiri@cc.nara-wu.ac.jp

EDUCATION: 1994 Graduate School of Science and Engineering, Keio University
1990 Faculty of Science and Engineering, Keio University

ACADEMIC DEGREES: Ph.D. Science Keio University

SUBJECT OF RESEARCH:

1. Study on categorifications for graph polynomials

2. Study on topology of graphs and curves on surfaces

SELECTED PUBLICATIONS:

1. On the existence of Yang-Mills connections by cauforwal changes in higher dimensions

Katagiri M.

Journal of Mathematical Society of Japan, 46(1): 139 (1994)

2. Oncritical Riemannian metrics for a curvature functional on 3 manifolds

Katagiri M.

Proceedings of the Japan, 78A(4): 40 (2002)

3. On conformally flat critical Riemannian metrics for a curvature functional

Katagiri M.

Proceedings of the Japan Academy, 81A: 27-29 (2005)

4. Upper bounds for the Roman bondage number of graphs on closed surfaces

Katagiri M.

Annual Report of Graduate School of Humanities and Sciences Nara Women's University, 32 (2016)

Group Theory, Representation theory

MATSUZAWA Junichi / Professor

matsuzawa@cc.nara-wu.ac.jp

EDUCATION: 1989 Division of Mathematics, Graduate School, The University of Tokyo
1983 Department of Mathematics, Faculty of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

Group Theory

SELECTED PUBLICATIONS:

1. Metallic-mean quasicrystals as aperiodic approximants of periodic crystals

Nakakura J, Zihel P, Matsuzawa J, Dotera T.

Nature Communications, volume 10, Article number: 4235 (2019)

2. Hard spheres on the gyroid surface

Dotera T, Kimoto M, Matsuzawa J.

Interface Focus, 2(5): 575-581 (2012)

DOI: 10.1098/rsfs.2011.0092

3. Hyperbolic Tiling on the Gyroid Surface in a Polymeric Alloy

Dotera T, Matsuzawa J.

RIMS Kokyuroku, 1725: 80-91 (2011)

4. Representations of the normalizers of maximal tori of simple Lie groups

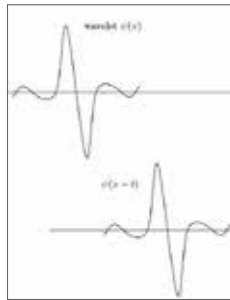
Matsuzawa J, Takahashi M.

Tukuba Journal of Mathematics, 33(2): 189-237 (2009)

5. Symmetry and Group Theory

Matsuzawa J.

Kobunshi (High Polymers, Japan), 57(February): 66-70 (2008)



Fourier analysis, wavelet analysis, and function spaces

MORITOH Shinya / Professor
moritoh (at) cc.nara-wu.ac.jp

EDUCATION: 1993 Graduate School of Mathematical Sciences, The University of Tokyo
 1991 Faculty of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

Applications of Fourier and wavelet transforms to function spaces

3. Embeddings of Bessel-potential spaces, and Lorentz-Karamata spaces (in Japanese)
 Moritoh S.

SELECTED PUBLICATIONS:

1. Detection of singularities in wavelet and ridgelet analyses

Moritoh S.
 RIMS Kokyuroku Bessatsu B57: 1-13 (2016)

Proceedings of Symposium on Real Analysis 2011 (Shinshu),
 43: 32-36 (2012)

2. Comparison of integral and discrete Ostrowski's inequalities in the plane

Moritoh S. Tanaka Y.
 Math. Inequal. Appl. 18(1): 125-132 (2015)

4. A Further Decay Estimate for the Dziubanski-Hernandez Wavelets
 Moritoh S. Tomoeda K.
 Canad. Math. Bull. 53: 133-139 (2010)

Knot theory, 3-Manifold topology, foliations, and Origami

MURAI Hiroko / Associate Professor
murai@cc.nara-wu.ac.jp

EDUCATION: 2007 Graduate School, Doctral Research Course in Human Culture, Nara Women's University
 2002 Faculty of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

1. Knots and links in 3-manifolds
2. Foliation on knot exterior
3. Categorification of knot invariants and graph polynomials
4. Geometry of Origami

2. Gap of the depths of leaves of foliations
 Murai H.

SELECTED PUBLICATIONS:

1. Gap of codimension one foliations
 Murai H.
 Kobe Journal of Mathematics, 29: 1-24 (2012)

Proceedings of Intelligence of Low Dimensional Topology 2006, Series on Knots and Everything, World Scientific, 40: 223-230 (2007)

3. Depths of the foliations on 3-manifolds each of which admits exactly one depth 0 leaf
 Murai H.
 Journal of Knot Theory and its Ramifications, World Scientific, 16(5): 641-669 (2007)

Number theory and varieties

OKAZAKI Takeo / Associate Professor
okazaki@cc.nara-wu.ac.jp

EDUCATION: 2004 Graduate School of Science, Osaka University

ACADEMIC DEGREES: Ph.D. Osaka University

SUBJECT OF RESEARCH:

Automorphic Representation and Number Theory

3. L-functions of $S_3(\Gamma_2(2,4,8))$
 Okazaki T.

SELECTED PUBLICATIONS:

1. On some Siegel threefold related to the tangent cone of the Fermat quartic surface.

Yamauchi T, Okazaki T.
 Advances in Theoretical and Mathematical Physics 21(3) (2017)

J. Number Theory, 132: 54-78 (2012)

2. Endoscopic lifts to the Siegel modular threefold related to Klein's cubic threefold

Yamauchi T, Okazaki T.
 Amer. J. Math., 135(1): 183-206 (2013)

4. Saito-Kurokawa type lift to $S_3(\Gamma^{1,3}(2))$
 Yamauchi T, Okazaki T.
 Math. Ann., 208: 589-601 (2008)

5. On L-functions of $S_3(\Gamma_2(4,8))$
 Okazaki T.
 J. Number theory, 125: 117-132 (2007)



Probabilistic models of statistical mechanics

SHINODA Masato / Professor
shinoda@cc.nara-wu.ac.jp

EDUCATION: 1994 Graduate School of Mathematical Sciences, The University of Tokyo
 1992 Faculty of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

Critical behaviors of percolation models, phase transition

Probability Theory and Related Fields, 125: 447-456 (2003)

SELECTED PUBLICATIONS:

1. Uniform spanning trees on Sierpinski graphs
 Shinoda M, Teufel E, Wagner S.

Latin American Journal of Probability and Mathematical Statistics, 11(2): 737-780 (2014)

2. Optimal strategy for $3 \times N$ AB games
 Shinoda M.

IPJS Journal, 53(6): 1-6 (2012)

3. Non-existence of phase transition of oriented percolation on Sierpinski carpet lattices
 Shinoda M.

4. Existence of phase transition of percolation on Sierpinski carpet lattices
 Shinoda M.

Journal of Applied Probability, 39(1): 1-10 (2002)

5. Flexible reward plans for crowdsourced tasks
 Sakurai Y, Oyama S, Yokoo M, Shinoda M.

PRIMA 2015: Principles and Practice of Multi-Agent Systems, the series Lecture Notes in Computer Science, 9387: 400-415 (2015)



Probability and stochastic analysis

TAKEMURA Tomoko / Associate Professor

Sm18031@cc.nara-wu.ac.jp

EDUCATION: 2010 Graduate School, Doctoral Research Course in Human Culture,
Nara Women's University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

Probability: stochastic process, limit theorem, skew product diffusion, harmonic transform

Tomisaki M, Takemura T.

Proc. Japan Acad. Ser. A Math. Sci., 91(1): 9-13 (2015)

SELECTED PUBLICATIONS:

1. Exponent of inverse local time for harmonic transformed process

3. Convergence of time changed skew product diffusion processes.

Takemura T.

Potential Anal., 38(1): 31-55 (2013)

Tomisaki M, Takemura T.

Ann. Report of Graduate School of Humanities and Sciences Nara Women's University Bulletin of Universities and Institutes Joint, 31: 127-138 (2016/03)

4. Lévy measure density corresponding to inverse local time

Tomisaki M, Takemura T.

Publ. Res. Inst. Math. Sci., 49(3): 563-599 (2013)

2. Asymptotic behavior of Lévy measure density corresponding to inverse local time.

Analytic number theory

UMEGAKI - ICHIHARA Yumiko / Professor

ichihara@cc.nara-wu.ac.jp

EDUCATION: 2002 Nagoya University

ACADEMIC DEGREES: Ph.D. Nagoya University

SUBJECT OF RESEARCH:

Number Theory, Automorphic L-function

3. The first moment of L-functions of primitive forms on $\Gamma_0(p^a)$ and a basis of old forms.

Ichihara Y.

Journal of Number Theory, 131(2): 343-362 (2011)

SELECTED PUBLICATIONS:

1. On the density function for the value-distribution of automorphic L-functions

Matsumoto K., Umegaki Y.

Journal of Number Theory, 198: 176--199 (2019)

4. Estimates of a certain sum involving coefficients of cusp forms in weight and level aspects

Ichihara Y.

Lithuanian Math. J., 48(2): 188-202 (2008)

2. On the value-distribution of the difference between logarithms of two symmetric power L-functions

Matsumoto K., Umegaki Y.

International Journal of Number Theory, 14(07): 2045-2081 (2018)

5. On the Siegel-Tatuzawa theorem for a class of L-functions

Ichihara Y., Matsumoto K.

Kyushu J. Math., 62: 201-215 (2008)



Study on hyperbolic structures of low-dimensional manifolds

YAMASHITA Yasushi / Professor

yamasita@ics.nara-wu.ac.jp

EDUCATION: 1991 Graduate School of science and engineering, Tokyo Institute of Technology

ACADEMIC DEGREES: Ph.D. Tokyo Institute of Technology

SUBJECT OF RESEARCH:

Hyperbolic geometry

DOI: 10.2140/agt.2013.13.927

SELECTED PUBLICATIONS:

1. Non-hyperbolic automatic groups and groups acting on CAT(0) cube complexes

Nakagawa Y, Tamura M, Yamashita Y.

International journal of algebra and computation Academic Journal Joint 24(6): 795-813 (2014/09)

DOI: 10.1142/S0218196714500349

3. Creating software for visualizing Kleinian groups Yamashita Y.

Lecture Note Ser., IMS, NUS 23: 159-190 (2012)

DOI: 10.1142/9789814401364_0005

2. The link volume of 3-manifolds

Rieck Y, Yamashita Y.

Algebraic and geometric topology 13: 927-958 (2013)

4. Linear slices of the quasi-Fuchsian space of punctured tori

Komori Y, Yamashita Y.

Conformal geometry and dynamics 16: 89-102 (2012)

DOI: 10.1090/S1088-4173-2012-00237-8



Nonlinear PDE and Fluid Mechanics

YANAGISAWA Taku / Professor

taku@cc.nara-wu.ac.jp

EDUCATION: 1985 Graduate School of Science, Hokkaido University

1983 Department of Mathematics, Faculty of Science, Hokkaido University

ACADEMIC DEGREES: Ph.D. Hokkaido University

SUBJECT OF RESEARCH:

1. Hodge decomposition of vector fields and its application to fluid dynamics

2. Free boundary problems in plasma dynamics

3. Initial boundary value problems for symmetric hyperbolic systems

4. Singularities of the solutions to compressible and incompressible Euler equations

5. Stability of boundary layers

Archive for Rational Mechanics and Analysis, 207(3): 879-905 (2013) DOI: 10.1007/s00205-012-0583-7

2. L¹ Helmholtz Decomposition and Its Application to the Navier-Stokes Equations

Kozono H, Yanagisawa T.

Lectures on Analysis of Nonlinear Partial Differential Equations: Part 3, Morningside Lectures in Mathematics, International Press, 3: 237-290 (2013)

3. Leray's inequality in general multi-connected domains in R^n

SELECTED PUBLICATIONS:

1. Global compensated compactness theorem for general differential operators of first order

Kozono H, Yanagisawa T.

Farwig R, Kozono H, Yanagisawa T.

Math. Ann., 354: 137-145 (2012)

DOI: 10.1007/s00208-011-0716-6



Experimental study of new state matter of deconfined quarks and gluons (QGP).

HACHIYA Takashi / Assistant Professor / hachiya@cc.nara-wu.ac.jp

EDUCATION: 2008 Department of Physical Science, Graduate school of Science, Hiroshima University
1999 Department of Physics, Faculty of Science, Hiroshima University

ACADEMIC DEGREES: Ph.D Hiroshima University

SUBJECT OF RESEARCH:

1. Properties of QGP using bottom and charm quark production in high energy heavy ion collisions.
2. Research and Development of the silicon detector for precise tracking.

SELECTED PUBLICATIONS:

1. Single electron yields from semileptonic charm and bottom hadron decays in Au+Au collisions at $\sqrt{s_{NN}}=200$ GeV. A. Adare et al. (PHENIX Collaboration) Phys. Rev. C, 93(3) 034904 (2016)
2. Creation of quark-gluon plasma droplets with three distinct geometries.

C. Aidala et al. (PHENIX Collaboration) Nature Physics (2018)

3. Heavy Quark Production in p+p and Energy Loss and Flow of Heavy Quarks in Au+Au Collisions at $\sqrt{s_{NN}}=200$ GeV. A. Adare et al. (PHENIX collaboration), Phys. Rev. C84 044905 (2011)

4. Centrality dependence of charm production from single electrons measurement in Au + Au collisions at $\sqrt{s_{NN}} = 200$ GeV. S.S. Adler et al.(PHENIX collaboration)

Phys. Rev. Lett.94 082301 (2005)



Theoretical study of nucleus

HIRENZAKI Satoru / Professor
zaki@cc.nara-wu.ac.jp

EDUCATION: 1991 Division of Physics, Graduate School of Science, Tokyo Metropolitan University
1986 Department of Physics, Faculty of Science, Science University of Tokyo

ACADEMIC DEGREES: Ph.D. Tokyo Metropolitan University

SUBJECT OF RESEARCH:

1. Structure and Formation of Meson–Nucleus bound systems
2. Nuclear reactions at Intermediate and High energy regions

SELECTED PUBLICATIONS:

1. Deeply bound pionic states in heavy nuclei
Yamazaki T, Hirenzaki S, Hayano R S, Toki H.
Phys. Report, 514: 1 (2012)
2. Structure of η' mesonic nuclei in a relativistic mean field theory
Jido D, Masutani H, Hirenzaki S.

Progress of Theoretical and Experimental Physics 2019: 053D02 (2019)

3. (d , ^3He) reactions for the formation of deeply bound pionic atoms
Hirenzaki S, Toki H, Yamazaki T.
Phys. Rev. C, 44: 2472-2479 (1991)

4. Structure and Formation of Deeply Bound Pionic Atoms
Toki H, Hirenzaki S, Yamazaki T, Hayano R S.
Nucl. Phys. A, 501: 653-671 (1989)



Experimental study for atomic collisions of singly and multiply charged ions over wide energy ranges from eV to MeV

ISHII Kunikazu / Associate Professor
ishii@cc.nara-wu.ac.jp

EDUCATION: 2002 Graduate School of Science, Tokyo Metropolitan University

ACADEMIC DEGREES: Ph.D. Tokyo Metropolitan University

SUBJECT OF RESEARCH:

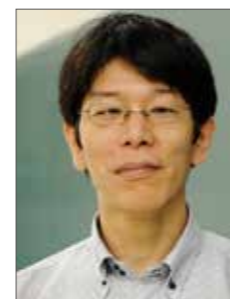
1. Collision dynamics by low energy highly charged ion
2. Basic and applied studies of MeV energy ions

SELECTED PUBLICATIONS:

1. Energy distribution of an ion beam extracted into air with a large bore metal capillary
Umigishi M, Hirano Y, Ishii K, Ogawa H.
Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms B, 354: 64 (2014)
2. Measurements of an ion beam diameter extracted into air through a large-bore metal capillary

Hirano Y, Umigishi M, Ishii K, Ogawa H.
Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms B, 354: 67 (2014)

3. Development of an in-air RBS technique using a metal capillary
Ishii K, Fujita N, Ogawa H.
Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms B, 269: 1026 (2011)



Study of deformation and fracture of soft materials and pattern formation

KITSUNEZAKI So / Professor
kitsune@ki-rin.phys.nara-wu.ac.jp

EDUCATION: 1997 Graduate School of Science, Kyoto University
1992 Faculty of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

1. Pattern Formation of Microorganisms
2. Dynamics of Granular Materials
3. Deformation and Fracture of Soft Materials

SELECTED PUBLICATIONS:

1. Shaking-induced stress anisotropy in the memory effect of paste
Kitsunezaki S, Nakahara A, Matsuo Y.
Europhys. Lett., 114: 64002 (2016)
2. Desiccation Cracks and their Patterns: Formation and Modelling in Science and Nature.
Goehring L, Nakahara A, Dutta T, Kitsunezaki S,

Tarafdar S.
Wiely, ISBN: 978-3-527-41213-6 (2015)

3. Cracking Condition of Cohesionless Porous Materials in Drying Processes
Kitsunezaki S.
Physical Review E, 87: 052805 (2013)

4. Bioconvection and front formation of *Paramecium tetraurelia*
Kitsunezaki S, Komori R, Harumoto T.
Physical Review E, 76: 046301 (2007)

Experimental study of magnetism and metal physics

MATSUOKA Yuki / Associate Professor

matsuoka@cc.nara-wu.ac.jp

EDUCATION: 1998 Division of Physics, Graduate School of Science, Tohoku University

ACADEMIC DEGREES: Ph.D. Tohoku University

SUBJECT OF RESEARCH:

1. The phase stability of noble metal martensitic alloy
2. Research of the effect of mugineic acid on Soil, ESR/EPR, Fe³⁺ mineral
3. ESR measurement of pottery and potter's clay, ESR, Bizen-pottery, clay, color, Fe³⁺

SELECTED PUBLICATIONS:

1. Composition dependence of the phase stability in Au-Cd-Ag martensitic alloy
Matsuoka Y, Fujita M, Nagahara A.
Materials Today Proceeding, 2S: S573-S576 (2015)
2. Size effect for phase stability on Au-Cd-Ag of phase boundary composition
Matsuoka Y, Suzuki K, Kudo N.
Journal of Alloys and Compounds, 577S: S521 - S524 (2012)



Elementary particle physics experiments, especially CP violation, heavy-flavored hadron spectroscopy, and particle detector development

MIYABAYASHI Kenkichi / Professor

miyabaya@cc.nara-wu.ac.jp

EDUCATION: 1994 Graduate School of Science, Nagoya University
1990 Faculty of Science, Nagoya University

ACADEMIC DEGREES: Ph.D. Nagoya University

SUBJECT OF RESEARCH:

1. Study of CP violation in B meson decays at high luminosity asymmetric-energy e⁺e⁻ collider
2. Heavy-flavored hadron spectroscopy at B-factory experiment
3. Research and development of inorganic scintillator based electromagnetic calorimeter
4. Beam background monitoring for high luminosity e⁺e⁻ collider

- Collaboration),
Phys. Rev. D 103, 032003 (2021)
2. Evidence of a new narrow resonance decaying to $\chi_{c1}\gamma$ in $B \rightarrow \chi_{c1}\gamma K$
Bhardwaj V, Miyabayashi K. et al. (The Belle Collaboration),
Phys. Rev. Lett., 111: 032001 (2013)
 3. Precise measurement of the CP violation parameter $\sin 2\phi_1$ in $B^0 \rightarrow (c\bar{c})K^0$ decays
Adachi I, Miyabayashi K. et al. (The Belle Collaboration),
Phys. Rev. Lett., 108: 171801 (2012)

SELECTED PUBLICATIONS:

1. Measurement of time-dependent CP violation parameters in $B_0 \rightarrow K_S^0 K_S^0 K_S^0$ decays at Belle
Kang K H, Miyabayashi K. et al. (The Belle



Theoretical study for the structures and properties of hadrons

NAGAIRO Hideko / Associate Professor

nagahiro@cc.nara-wu.ac.jp

EDUCATION: 2001 Graduate School, Doctoral Research Course in Human Culture, Nara Women's University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

1. Natures of hadrons (structure, mass generation, decay properties)
2. eta, eta'(958) mesic nuclei and chiral symmetry

SELECTED PUBLICATIONS:

1. Structure of charmed baryons studied by pionic decays
Nagahiro H, Yasui S, Hosaka A, Oka M, Noumi H.
(American Physical Society) Phys. Rev. D, 95: 014023 (2017)
2. Measurement of excitation spectra in the $^{12}\text{C}(p,d)$ reaction near eta' emission threshold

- eta-PRIME/Super-FRS Collaboration (Tanaka Y K. et al.)
(American Physical Society) Phys. Rev. Lett., 117: 202501. (2016)
3. Elementarity of composite systems
Nagahiro H, Hosaka A.
(American Physical Society) Phys. Rev. C, 90: 065201 (2014)
4. Composite and elementary nature of a resonance in the sigma model,
Nagahiro H, Hosaka A.
(as Editors' Suggestion) Phys. Rev. C, 88: 055203 (2013)



Theoretical study of particle phenomenology and dynamics of quantum gauge theories

OHKI Hiroshi / Assistant Professor

hohki@cc.nara-wu.ac.jp

EDUCATION: 2010 Division of Physics and Astronomy, Graduate School of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

1. Study of Particle Phenomenology
2. Lattice gauge Theory
3. Numerical Simulation of Lattice Quantum Chromo Dynamics
4. String Phenomenology
5. Non-perturbative dynamics of the quantum gauge theory

SELECTED PUBLICATIONS:

1. An introduction to non-Abelian discrete symmetries for particle physicists
Ishimori H, Kobayashi T, Ohki H, Okada H, Shimizu Y, Tanimoto M.

- Springer, 978-3-642-30804-8 (2012)
2. Light composite scalar in twelve-flavor QCD on the lattice
Aoki Y, Aoyama T, Kurachi M, Maskawa T, Nagai K, Ohki H, Rinaldi E, Shibata A, Yamawaki K, Yamazaki T.
Phys. Rev. Lett., 111(162001): 1-5 (2013)
3. Nucleon strange quark content from $N_f = 2 + 1$ lattice QCD with exact chiral symmetry
Ohki H, Takeda T, Aoki S, Hashimoto S, Kaneko T, Matsufuru H, Noaki J, Onogi T.
Phys. Rev. D, 87(034509): 1-13 (2013)



**Observational study of structure formation in the universe;
Observational cosmology**

OTA Naomi / Associate Professor
naomi@cc.nara-wu.ac.jp

EDUCATION: 2001 Division of Physics, Graduate School of Science, The University of Tokyo
1996 Department of Physics, Faculty of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

1. Observational study of galaxy clusters and large-scale structures in the Universe
2. Observational cosmology
3. Feasibility study of astrophysical observations using future X-ray satellites

with high-resolution X-ray spectroscopy

- Ota N, Nagai D, Lau E T.
Publications of the Astronomical Society of Japan, 70 id. 51 (2018)
3. Search for gas bulk motions in eight nearby clusters of galaxies with Suzaku
Ota N, Yoshida H.
Publications of the Astronomical Society of Japan, 68(SP1) id. S19 (2016)
4. X-ray spectroscopy of clusters of galaxies
Ota N.
Research in Astronomy & Astrophysics, 12(8): 973-994 (2012)

SELECTED PUBLICATIONS:

1. X-ray properties of high-richness CAMIRA clusters in the Hyper Suprime-Cam Subaru Strategic Program field
Ota N, Mitsuishi I, Babazaki Y. et al.
Publications of the Astronomical Society of Japan, 72 id. 1 (2020)
2. Constraining hydrostatic mass bias of galaxy clusters



Experimental study of quark gluon plasma (QGP) created by high-energy heavy ion collisions

SHIMOMURA Maya / Assistant Professor / maya@cc.nara-wu.ac.jp

EDUCATION: 2004,2009 Physics, Graduate School of Pure and Applied Sciences, University of Tsukuba
2002 Physics, Faculty of Science, Nara Women's University
2001 Physics and Astronomy, Liberal Arts and Sciences, Iowa State University

ACADEMIC DEGREES: Ph.D. University of Tsukuba

SUBJECT OF RESEARCH:

The boundary condition of the produced QGP matter by measuring azimuthal anisotropy in relativistic heavy ion collisions at RHIC-(s)PHENIX and LHC-ALICE

2. Single electron yields from semileptonic charm and bottom hadron decays in Au+Au collisions at $\sqrt{s_{NN}}=200$ GeV

A. Adare et al. (PHENIX Collaboration)
Phys. Rev. C, 93(3): 034904 (2016)
DOI: 10.1103/PhysRevC.93.034904

SELECTED PUBLICATIONS:

1. Measurement of the higher-order anisotropic flow coefficients for identified hadrons in Au + Au collisions at $\sqrt{s_{NN}}=200$ GeV
A. Adare et al. (PHENIX Collaboration)
Phys. Rev. C, 93(5): 051902 (2016)
DOI: 10.1103/PhysRevC.93.051902

3. Systematic Study of Azimuthal Anisotropy in Cu+Cu and Au+Au Collisions at $\sqrt{s_{NN}}=62.4$ and 200GeV
A. Adare et al. (PHENIX Collaboration)
Phys.Rev.C, 92(3): 034913 (2015)
DOI: 10.1103/PhysRevC.92.034914



String, string field, quantum field, and unified theories

TAKAHASHI Tomohiko / Professor
tomo@cc.nara-wu.ac.jp

EDUCATION: 1997 Division of Physics and Astronomy, Graduate School of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

String particle physics field theory

3. Comments on observables for identity-based marginal solutions in Berkovits' superstring field theory
Kishimoto I, Takahashi T.

SELECTED PUBLICATIONS:

1. Open String Feilds as Matrices
Kishimoto I, Masuda T, Takahashi T, Takemoto S.
Prog Theor Exp Phys, 2015(3): 033B05 (2015)
DOI: 10.1093/ptep/ptv023
2. Observables for identity-based tachyon vacuum solutions
Kishimoto I, Masuda T, Takahashi T.
Prog Theor Exp Phys, 2014(10): 103B02 (2014)
DOI: 10.1093/ptep/ptu136

J. High Energy Phys., 2014:31 (2014)
DOI: 10.1007/JHEP07(2014)031

4. Gauge invariant overlaps for identity-based marginal solutions
Kishimoto I, Takahashi T.
Prog Theor Exp Phys, 2013(9): 093B07 (2013)
DOI: 10.1093/ptep/ptt073



Theoretical study of correlation effects in condensed-matter systems

TSUCHIIZU Masahisa / Associate Professor
tsuchiiz@cc.nara-wu.ac.jp

EDUCATION: 2001 Graduate School of Science, Nagoya University
1996 Faculty of Science, Nagoya University

ACADEMIC DEGREES: Ph.D. Nagoya University

SUBJECT OF RESEARCH:

1. Strong correlations in two-dimensional electron systems
2. Electronic correlations in molecular conductors
3. Charge ordering in one-dimensional electron systems

2. Multi-Orbital Molecular Compound (TTM-TTP)₁₃: Effective Model and Fragment Decomposition
Tsuchiizu M, et al.
J. Phys. Soc. Jpn. 80: 013703 (2011)

SELECTED PUBLICATIONS:

1. Orbital Nematic Instability in the Two-Orbital Hubbard model: Renormalization-Group + Constrained RPA Analysis
Tsuchiizu M, et al.
Phys. Rev. Lett. 111: 057003 (2013)

3. Interchain-Frustration-Induced Metallic State in Quasi-One-Dimensional Mott Insulators
Tsuchiizu M, Suzumura Y, Bourbonnais C.
Phys. Rev. Lett. 99: 126404 (2007)

4. Phase Diagram of One-Dimensional Extended Hubbard Model at Half Filling
Tsuchiizu M, Furusaki A.
Phys. Rev. Lett. 88: 056402 (2002)



Experimental study of crystal structures and physical properties of quasicrystals and intercalated layered materials

YAMAMOTO Kazuki / Professor

kazuki.yamamoto@cc.nara-wu.ac.jp

EDUCATION: 1994 Graduate School of Engineering, University of Tsukuba
1991 Graduate School of Science, Niigata University

ACADEMIC DEGREES: Ph.D. University of Tsukuba

SUBJECT OF RESEARCH:

1. X-ray Study of Electron Density Distributions in Crystals.
2. X-ray Study of Structure for Quasicrystals.
3. X-ray Study of Structure for Intercalated Layered Materials.

strains in a Co-rich Al-Ni-Co decagonal phase
Yamamoto K, Yang W, Nishimura Y, Matsuo Y.
Materials Transactions, 45(4): 1225-1260 (2004)

3. Structure of an Al-Cu-Co Decagonal Quasicrystal Studied by Cs-Corrected STEM
Yubuta K, Yamamoto K, Yasuhara A, Hiraga K.
Material Transaction, 55(6): 866-870 (2014)

SELECTED PUBLICATIONS:

1. X-ray study of the electron density distribution for Al_6Mn , Yamamoto K, Matsuo Y.
Journal of Physics: Condensed Matter, 12(11): 2359-2365 (2000)
2. Synchrotron X-ray studies of phason and phonon

4. The structure of an Al-Rh-Cu decagonal quasicrystal studied by spherical aberration (Cs)-corrected scanning transmission electron microscopy
Yubuta K, Yamamoto K, Yasuhara A, Hiraga K.
Philosophical Magazine, 95: 1524-1535 (2015)



Observational study of high-energy phenomena with X-ray satellites

YAMAUCHI Shigeo / Professor

yamauchi@cc.nara-wu.ac.jp

EDUCATION: 1991 Division of Astrophysics, Graduate School of Science, Nagoya University
1987 Department of Physics, Faculty of Science, Nagoya University

ACADEMIC DEGREES: Ph.D. Nagoya University

SUBJECT OF RESEARCH:

1. Origin of the Galactic Diffuse X-ray Emission
2. Evolution of Supernova Remnants

Koyama K.
Publications of the Astronomical Society of Japan, 68(4): 59 (2016)

SELECTED PUBLICATIONS:

1. Origin of the Galactic Diffuse X-Ray Emission: Iron K-shell Line Diagnostics
Nobukawa M, Uchiyama H, Nobukawa K K, Yamauchi S, Koyama K.
The Astrophysical Journal, 833(2): 268 (2016)
2. Scale heights and equivalent widths of the iron K-shell lines in the Galactic diffuse X-ray emission
Yamauchi S, Nobukawa K K, Nobukawa M, Uchiyama H,

3. The quiet intracluster medium in the core of the Perseus cluster
The Hitomi collaboration
Nature, 535: 117-121 (2016)

4. Iron emission line from the spiral galaxy M101
Yamauchi S.
Publications of the Astronomical Society of Japan, 68(SP1): S18 (2016)



Theoretical study of highly correlated low-dimensional electron systems

YOSHIOKA Hideo / Professor

h-yoshi@cc.nara-wu.ac.jp

EDUCATION: 1993 Graduate School of Science, The University of Tokyo
1988 Faculty of Science, Nagoya University

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

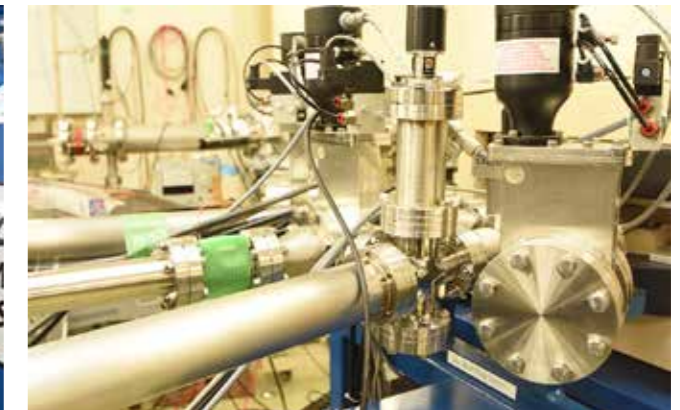
1. Theoretical Study on Quasi-One-Dimensional Organic Conductors
2. Electronic Correlation in Carbon Nanotubes
3. Theoretical Study on Strongly Correlated One-Dimensional Electron System

2. Phase competition, solitons, and domain walls in neutral-ionic transition systems
Tsuchiizu M, Yoshioka H, Seo H.
J. Phys. Soc. Jpn., 85: 104705(10 Pages) (2016)
DOI: 10.7566/JPSJ.85.104705

SELECTED PUBLICATIONS:

1. Tomonaga-Luttinger liquid theory for metallic fullere polymers
Yoshioka H, Shima H, Noda Y, Ono S, Ohno K.
Physical Review B, 93: 165431 (2016)
DOI: 10.1103/PhysRevB.93.165431

3. Enhancement of charge ordering by zeeman effect in one-dimensional molecular conductors
Yoshioka H, Seo H, Otsuka Y.
Journal of the Korean Physical Society, 63(3): 383-386 (2013)
DOI: 10.3938/jkps.63.383





Octapalladium strings trap C₆₀ and C₇₀ fullerenes affording metal-chain-wired bucky balls.

Microstructural characterization of foam formed by an amino acid surfactant using small-angle neutron scattering.

Enhancing single-molecule magnet properties of sandwich complexes via ligand oxidation.

Elucidation of molecular mechanism between structure and function of metalloproteins and metalloenzymes

FUJII Hiroshi / Professor
fujii@cc.nara-wu.ac.jp

EDUCATION: 1990 Graduate School of Engineering Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

Reactivity and selectivity of metalloenzymes relating to biological oxidation reactions

Nishikawa K, Honda Y, Fujii H.

J. Am. Chem. Soc., 142, 4980-4984 (2020)

3. Critical Factors in Determining the Heterolytic versus Homolytic Bond Cleavage of Terminal Oxidants by Iron(III) Porphyrin Complex

Yokota S, Fujii H.

J. Am. Chem. Soc., 140, 5127-5137 (2018)

SELECTED PUBLICATIONS:

1. Rate Limiting Step of Epoxidation Reaction of Oxoiron(IV) Porphyrin π -Cation Radical Complex: Electron Transfer Coupled Bond Formation Mechanism
Ishimizu Y, Ma Z, Hada M, Fujii H.

Inorg. Chem., 60, 17687-17698 (2021)

2. Spectroscopic Evidence for Acid-Catalyzed Disproportionation Reaction of Oxoiron(IV) Porphyrin to Oxoiron(IV) Porphyrin π -Cation Radical and Iron(III) Porphyrin

4. Participation of Electron-Transfer Process in Rate-Limiting Step of Aromatic Hydroxylation Reactions by Compound I Models of Heme Enzymes

Asaka M, Fujii H.

J. Am. Chem. Soc., 138, 8048-8051 (2016)



Development of light-driven biocatalytic process

HONDA Yuki / Associate Professor
honda@cc.nara-wu.ac.jp

EDUCATION: 2012 Graduate School of Advanced Science and Engineering, Waseda University

ACADEMIC DEGREES: Dr.Eng. Waseda University

SUBJECT OF RESEARCH:

1. Inorganic/bio hybrid photocatalytic system for hydrogen production
2. Light-driven coenzyme regeneration system

2. Inorganic/whole-cell Biohybrid Photocatalyst for Highly Efficient Hydrogen Production from Water
Honda Y, Watanabe M, Hagiwara H, Ida S, Ishihara T.
Appl. Catal. B Environ., 210: 400-406 (2017)
DOI: 10.1016/j.apcatb.2017.04.015

SELECTED PUBLICATIONS:

1. Coexpression of 5-Aminolevulinic Acid Synthase Gene Facilitates Heterologous Production of Thermostable Cytochrome P450, CYP119, in Holo Form in *Escherichia coli*

Honda Y, Nanasawa K, Fujii H.

ChemBioChem, 19: 2156-2159 (2018)

DOI: 10.1002/cbic.201800331

3. Application to Photocatalytic H₂ Production of a Whole-cell Reaction by Recombinant *Escherichia coli* Cells Expressing [FeFe]-hydrogenase and Maturases Genes

Honda Y, Hagiwara H, Ida H, Ishihara T.

Angew. Chem. Int. Ed., 55: 8045-8048 (2016).

DOI: 10.1002/anie.201600177



Construction of molecule-based magnetic materials and analyses of their magnetic properties

HORII Yoji / Assistant Professor

horiiy20@cc.nara-wu.ac.jp

EDUCATION: 2017 Graduate School of Science, Tohoku University
2012 Faculty of Science, Tohoku University

ACADEMIC DEGREES: Ph.D. Tohoku University

SUBJECT OF RESEARCH:

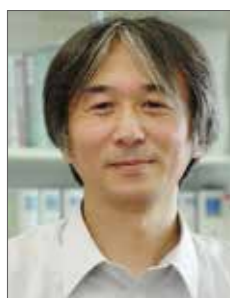
1. Single-Molecule Magnet
2. Metal-Organic Frameworks

SELECTED PUBLICATIONS:

1. Highly Oxidized States of Phthalocyaninato Terbium(III) Multiple-Decker Complexes Showing Structural Deformations, Biradical Properties and Decreases in Magnetic Anisotropy
Horii Y, Damjanovic M, Ajayakumar R, Katoh K, Kitagawa Y, Chibotaru L, Ungur L, Mas-Torrent M, Wernsdorfer W, Breedlove K, Enders M, Veciana J, Yamashita M.
Chem. Eur. J., 26: 8621-8630 (2020)

2. Dynamics and magnetic properties of NO molecules encapsulated in open-cage fullerene derivatives evidenced by low temperature heat capacity
Horii Y, Suzuki H, Miyazaki Y, Nakano M, Hasegawa S, Hashikawa Y, Murata Y.
Phys. Chem. Chem. Phys., 23: 10251-10256 (2021)

3. Structural, magnetic and theoretical analyses of anionic and cationic phthalocyaninato-terbium(iii) double-decker complexes: magnetic relaxation via higher ligand-field sublevels enhanced by oxidation
Horii Y, Damjanovic M, Katoh K, Yamashita M.
Dalton Trans., 50: 9719-9724 (2021)



Research on the physical properties of nano-sized metal complexes in a solid state

KAJIWARA Takashi / Professor

kajiwara@cc.nara-wu.ac.jp

EDUCATION: 2000 Graduate School of Science, Tohoku University

ACADEMIC DEGREES: Ph.D. Tohoku University

SUBJECT OF RESEARCH:

Magnetochemistry of lanthanide-based metal complexes

SELECTED PUBLICATIONS:

1. Anisotropy of Spin-Lattice Relaxations in Mononuclear Tb³⁺ Single-Molecule Magnets
Konieczny P, Pelka R, Masuda Y, Sakata S, Kayahara S, Irie N, Kajiwara T, Baran S.
J. Phys. Chem. C, 124(14): 7930-7937 (2020)
DOI: 10.1021/acs.jpcc.9b11057

2. Correlation between Slow Magnetic Relaxations and Molecular Structures of Dy(III) Complexes with N₅O₄ Nona-Coordination

Kobayashi K, Harada Y, Ikenaga K, Kitagawa Y, Nakano M, Kajiwara T.
Magnetochemistry, 5(2): 27 (2019)
DOI:10.3390/magnetochemistry5020027

3. A Holmium (III)-Based Single-Molecule Magnet with Pentagonal-Bipyramidal Geometry
Kajiwara T.
Angew. Chem. Int. Ed. 56(38): 11306-11308 (2017)
DOI:10.1002/anie.201703022.



Design and synthesis of high-performance transition metal complex catalysts and development of novel environmentally friendly synthetic organic reactions

KATAOKA Yasutaka / Professor / kataoka@cc.nara-wu.ac.jp

EDUCATION: 1992 Graduate School of Engineering, Kyoto University
1987 Faculty of Engineering, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

1. Synthetic Organic Chemistry
2. Organometallic Chemistry

SELECTED PUBLICATIONS:

1. Secondary Phosphine Oxide-triggered Selective Oxygenation of a Benzyl Ligand on Palladium
Oka S, Shigehiro Y, Kataoka Y, Ura Y.
Chem. Commun., 56: 12977-12980 (2020)

2. Palladium/Copper-catalyzed Oxidation of Aliphatic Terminal Alkenes to Aldehydes Assisted by p-Benzoquinone
Komori S, Yamaguchi Y, Murakami Y, Kataoka Y, Ura Y.

ChemCatChem, 12, 3946-3955 (2020)

3. Palladium-catalyzed Aerobic anti-Markovnikov Oxidation of Aliphatic Alkenes to Terminal Acetals
Komori S, Yamaguchi Y, Kataoka Y, Ura, Y.
J. Org. Chem., 84, 3093-3099 (2019)



Classical and quantum molecular simulations aiming at a priori design and investigation of physical properties of molecular ensembles and condensed matter

KINUGAWA Kenichi / Professor / kinugawa@cc.nara-wu.ac.jp

EDUCATION: 1988 Graduate School of Engineering, Kyoto University
1986 Faculty of Engineering, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

Classical and quantum molecular simulations aiming at a priori design and investigation of physical properties of molecular ensembles and condensed matter

SELECTED PUBLICATIONS:

1. Quantum polyamorphism in compressed distinguishable helium-4
Kinugawa K, Takemoto A.
J. Chem. Phys. 154, 224503 (2021)
doi: 10.1063/5.0048539

2. Quantumness and state boundaries hidden in supercritical helium-4: A path integral centroid molecular

dynamics study

Takemoto A, Kinugawa K.
J. Chem. Phys. 149, 204504 (2018)
doi: 10.1063/1.5053988

3. Transport coefficients of normal liquid helium-4 calculated by path integral centroid molecular dynamics simulation
Imaoka H, Kinugawa K.
Chem. Phys. Lett. 671, 174 (2017)
doi: 10.1016/j.cplett.2017.01.034



Research on molecular chirality and organic synthesis using organometallic reagents

MATSUMOTO Arimasa / Associate Professor

a-matsumoto@cc.nara-wu.ac.jp

EDUCATION: 2012 Graduate School of Science, The University of Tokyo
2007 Faculty of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

Organometallic Chemistry, Chirality

Matsumoto A, Ozaki H, Harada S, Tada K, Ayugase T, Ozawa H, Kawasaki T, Soai K.

Angew. Chem. Int. Ed., 55: 15246–15249 (2016)

DOI:10.1002/anie.201608955

SELECTED PUBLICATIONS:

1. Achiral Inorganic Gypsum Acts as an Origin of Chirality through Its Enantiotopic Surface in Conjunction with Asymmetric Autocatalysis

Matsumoto A, Kaimori Y, Uchida M, Omori H, Kawasaki T, Soai K.

Angew. Chem. Int. Ed., 56: 545-548 (2017)

DOI:10.1002/anie.201610099

3. Crystal Structure of Isopropylzinc Alkoxide of Pyrimidyl Alkanol: Mechanistic Insights for Asymmetric Autocatalysis with Amplification of Enantiomeric Excess

Matsumoto A, Abe T, Hara A, Tobita T, Sasagawa T, Kawasaki T, Soai K.

Angew. Chem. Int. Ed., 54: 15218-15221 (2015)

DOI: 10.1002/anie.201508036

2. Asymmetric Induction by Nitrogen ¹⁴N/¹⁵N Isotopomer in Conjunction with Asymmetric Autocatalysis



Development of new functions and reactions based on organometallic clusters and synthesis of supramolecules comprised of metal clusters

NAKAJIMA Takayuki / Professor

t.nakajima@cc.nara-wu.ac.jp

EDUCATION: 1998 Graduate School of Science and Engineering, Doctor later, Waseda University

ACADEMIC DEGREES: Ph.D. Waseda University

SUBJECT OF RESEARCH:

Development of new functions and reactions based on organometallic clusters supported by multidentate ligands and synthesis of supramolecules comprised of metal clusters

Nakajima T, Noda S, Sakamoto M, Matsui A, Nakamae K, Kure B, Ura Y, Tanase T.

Dalton Trans., 45: 4747-4761 (2016)

3. Reversible Dioxygen Binding on Asymmetric Dinuclear Rhodium Centres

Nakajima T, Sakamoto M, Kurai S, Kure B, Tanase T.

Chem. Commun., 49: 5239-5338 (2013)

SELECTED PUBLICATIONS:

1. Tri- and Tetranuclear Copper Hydride Complexes Supported by Tetridentate Phosphine Ligands

Nakajima T, Kamiryo K, Hachiken K, Nakame K, Ura Y, Tanase T.

Inorg. Chem., 57, 11005-11018 (2018).

2. Oxidative Addition of Aromatic ortho C–H Bond of Tetrakisphosphine to Asymmetric Diiridium(I) Centres

4. Wheel-Shaped Icosanuclear Homo- and Heterometallic Complexes of NiII, CoII, and CuII Ions Supported by Unsymmetrical Aminoalcohol Ligands

Nakajima T, Seto K, Horikawa F, Shimizu I, Scheurer A, Kure B, Kajiwara T, Tanase T, Mikuriya M.

Inorg. Chem., 51: 12503-12510 (2012)



Computational physical chemistry: Quantum dynamics of molecular systems

OHTA Yasuhito / Associate Professor

ohta@cc.nara-wu.ac.jp

EDUCATION: 2001 Kanazawa University

ACADEMIC DEGREES: Ph.D. Kanazawa University

SUBJECT OF RESEARCH:

Quantum chemical molecular dynamics simulation of the self-organization reaction of nano materials

Iron Particle

Ohta Y, Okamoto Y, Alister J. Page, Stephan Irle, Morokuma K.

ACS NANO, 3: 3413-3420 (2009)

SELECTED PUBLICATIONS:

1. Possible Mechanism of BN Fullerene Formation from a Boron Cluster: Density-Functional Tight-Binding Molecular Dynamics Simulations

Ohta Y.

Journal of Computational Chemistry, 37: 886-895 (2016)

DOI: 10.1002/jcc.24287

3. Density-functional tight-binding molecular dynamics simulations of SWCNT growth by surface carbon diffusion on an iron cluster

Ohta Y, Okamoto Y, Stephan Irle, Morokuma K.

Carbon, 47: 1270-1275 (2009)

2. Quantum Chemical Molecular Dynamics Simulation of Single-Walled Carbon Nanotube Cap Nucleation on an



Design and photofunctionalization of metalloproteins

TAKASHIMA Hiroshi / Associate Professor

hiroshi@cc.nara-wu.ac.jp

EDUCATION: 2000 Graduate School of Engineering, Kyushu University
1997 Graduate School of Engineering, Doshisha University

ACADEMIC DEGREES: Ph. D. Kyushu University

SUBJECT OF RESEARCH:

Photoinduced electron transfer reactions in the metalloprotein containing a photofunctional molecule.

2. Photophysical and electron-transfer reaction properties of tris(2,2'-bipyridine)ruthenium(II)-based inhibitors that covalently bound to the active site of chymotrypsin

Kimura H, Nagasato N, Kato N, Kojima M, Enomoto C, Nakata E, Takashima H

Journal of Photochemistry and Photobiology, 6: 100027 (2021)

DOI: 10.1016/j.jpap.2021.100027

SELECTED PUBLICATIONS:

1. Circularly polarized luminescence (CPL) characteristics of hydrophobic pyrene derivatives/ γ -cyclodextrin (γ -CD) complexes in aqueous solution dissolved by grinding

Sawai M, Matsumoto S, Mimura Y, Imai Y, Yamazaki S, Kanehisa N, Tohnai N, Nakata E, Takashima H

Journal of Inclusion Phenomena and Macrocyclic Chemistry, 102: 133-142 (2022)

DOI: 10.1007/s10847-021-01108-z

3. Photoinduced electron-transfer reactions of tris(2,2'-bipyridine)ruthenium(II)-based carbonic anhydrase inhibitors tethering plural binding sites

Suwa M, Imamura N, Awano P, Nakata E, Takashima H.

Journal of Physical Organic Chemistry, 31: e3848(2018)

DOI: 10.1002/poc.3848



Unimolecular Dissociation and Ion-Molecule Reaction Dynamics in the Gas Phase by Combining Mass Spectrometric Studies with Theoretical Methods, and Development of Software for Fungal Species Identification

TAKEUCHI Takae / Associate Professor / takeuchi_t@cc.nara-wu.ac.jp

EDUCATION: 1985 Graduate School of Humanities and Sciences, Nara Women's University
1982 Graduate School of Science, Nara Women's University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

1. Theoretical Study of the Fragmentation Mechanism in Mass Spectrometry: Energetics and Dynamics
2. Development of Fungal Odor Detection Technique and Software for Identifying Fungal Species by Ion Mobility and Mass Spectrometric Analysis of Microbial Volatile Organic Compounds (MVOCs) for Conservation of Cultural Properties
3. Generation and Reactivity of SiSi Multiple Bonded Ions Using Mass Spectrometry
4. Glossary of methods and terms used in surface chemical analysis

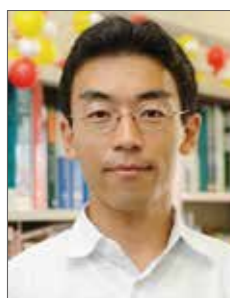
(IUPAC Recommendations 2020)

- Takeuchi T, A. McQuillan J, Shard A, Russell A.E., Hibbert D.B. Pure and Applied Chemistry, 92: 1781-1860 (2020)
2. Mechanism for Odd-electron Anion Generation of Dihydroxybenzoic Acid Isomers in Matrix-assisted Laser Desorption/Ionization Mass Spectrometry with Density Functional Theory Calculations
Yamagaki T, Takeuchi M, Watanabe T, Sugahara K, Takeuchi T. Rapid Comm. Mass Spectrom., 30: 2650-2654 (2016)
3. Analysis of Volatile Metabolites Emitted by Soil-Derived Fungi Using Head Space Solid-Phase Microextraction/ Gas Chromatography/ Mass Spectrometry I. *Aspergillus fumigatus*, *Aspergillus nidulans*, *Fusarium solani* and *Penicillium paneum*

Takeuchi T, Kimura T, Tanaka H, Kaneko S, Ichii S, Kiuchi M, Suzuki T. Surf. Interface Anal., 44:694-698 (2012)

SELECTED PUBLICATIONS:

1. Glossary of methods and terms used in surface chemical analysis



Research on the synthesis, reactivity, and catalysis of novel transition metal complexes toward a sustainable future

URA Yasuyuki / Associate Professor / ura@cc.nara-wu.ac.jp

EDUCATION: 2001 Graduate School of Pharmaceutical Sciences, Hokkaido University
1997 Faculty of Pharmaceutical Sciences, Hokkaido University

ACADEMIC DEGREES: Ph. D. Hokkaido University

SUBJECT OF RESEARCH:

1. Development of environmental load-reducing organic synthetic reactions using transition metal catalysts
2. Synthesis, reactivity, and catalysis of novel transition metal complexes

- Oxygenation of a Benzyl Ligand on Palladium
Oka S, Shigehiro Y, Kataoka Y, Ura Y. Chem. Commun., 56: 12977-12980 (2020)
DOI: 10.1039/D0CC05572G
3. Palladium/Copper-catalyzed Oxidation of Aliphatic Terminal Alkenes to Aldehydes Assisted by p-Benzoquinone
Komori S, Yamaguchi Y, Murakami Y, Kataoka Y, Ura Y. ChemCatChem, 12: 3946-3955 (2020)
DOI: 10.1002/cctc.202000472

SELECTED PUBLICATIONS:

1. Palladium-Catalyzed Aerobic α,β -Dehydrogenation of Carboxylic Acids
Shibatani A, Kataoka Y, Ura Y. Asian J. Org. Chem., 10:3285-3289 (2021).
DOI: 10.1002/ajoc.202100637
2. Secondary Phosphine Oxide-triggered Selective



Colloid and surface chemistry: Research on properties and nano-structure of molecular assemblies

**YADA Shiho / Assistant Professor
yada@cc.nara-wu.ac.jp**

EDUCATION: 2019 Graduate School of Humanities and Sciences, Nara Women's University

ACADEMIC DEGREES: Ph. D. Nara Women's University

SUBJECT OF RESEARCH:

1. Structural analysis of micelle, liquid crystal and ionic liquid using small angle X-ray and neutron scattering techniques
2. Evaluation of properties and structural analysis of foams formed by surfactants
3. Structural analysis of amphiphilic compounds adsorbed at air/water interface

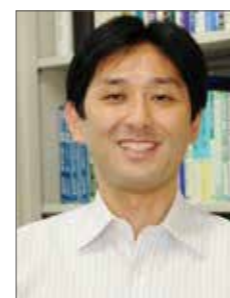
DOI: 10.1021/acs.langmuir.0c00791

2. Emulsification, Solubilization, and Detergency Behaviors of Homogeneous Polyoxypropylene-Polyoxyethylene Alkyl Ether Type Nonionic Surfactants
Yada S, Matsuoka K, Kanasaki Y, Gotoh K, Yoshimura T. Colloids Surf. A 564: 51-58 (2019)
DOI: 10.1016/j.colsurfa.2018.12.030

SELECTED PUBLICATIONS:

1. Microstructural Characterization of Foam Formed by a Hydroxy Group-Containing Amino Acid Surfactant Using Small-Angle Neutron Scattering
Yada S, Shimosegawa H, Fujita H, Yamada M, Matsue Y, Yoshimura T. Langmuir 36: 7808-7813 (2020)

3. Adsorption and Aggregation Properties of Homogeneous Polyoxypropylene-Polyoxyethylene Alkyl Ether Type Nonionic Surfactants
Yada S, Suzuki T, Hashimoto S, Yoshimura T. Langmuir 33(15): 3794-3801 (2017)
DOI: 10.1021/acs.langmuir.7b00104



Physical chemistry of soft matter: Surfactants, amphiphilic polymers, ionic liquid, and metal nanoparticles

**YOSHIMURA Tomokazu / Professor
yoshimura@cc.nara-wu.ac.jp**

EDUCATION: 2001 Graduate School of Science and Technology, Kumamoto University

ACADEMIC DEGREES: Ph.D. Kumamoto University

SUBJECT OF RESEARCH:

1. Design and Synthesis of Novel Surfactants and Amphiphilic Polymers with High Functions
2. Study on Solution Properties of Surfactant
3. Study on Self-Assembly Using DLS, SAXS, SANS and cryo-TEM
4. Study on Liquid/Liquid Interface and Emulsion

DOI: 10.1021/acs.langmuir.7b00104

2. Aggregate Formation of Glycyrrhizic Acid
Matsuoka K, Miyajima R, Ishida Y, Karasawa S, Yoshimura T. Colloids Surf. A 500: 112-117 (2016)
DOI: 10.1016/j.colsurfa.2016.04.032

SELECTED PUBLICATIONS:

1. Adsorption and Aggregation Properties of Homogeneous Polyoxypropylene-Polyoxyethylene Alkyl Ether Type Nonionic Surfactants
Yada S, Suzuki T, Hashimoto S, Yoshimura T. Langmuir, 33(15): 3794-3801 (2017)

3. Single-alkyl and multi-alkyl chain-containing amphiphilic oligomers with several sugar side chains: solution properties and nanostructural analysis of aggregates by SANS
Yoshimura T, Nakatani Y, Matsuoka K, Akutsu K, Iwase H. Colloid Polym. Sci., 295(5): 793-802 (2017)
DOI: 10.1007/s00396-017-4063-3



Ecology and evolution of plant reproductive strategy, with focuses on the mutualism between plants and pollinators and resource utilization of plants

IDA Takashi / Associate Professor / tyida@cc.nara-wu.ac.jp

EDUCATION: 2009 Hokkaido University
2003 Hokkaido University

ACADEMIC DEGREES: Ph.D. Hokkaido University

SUBJECT OF RESEARCH:

1. Plant reproduction
2. Plant-animal interactions
3. Resource allocation

grossedentatum

Ida TY, Minato E.

Plant Ecology, 221: 965-978 (2020)

3. Intraspecific neighborhood effect: population-level consequence of aggregation of highly-defended plants.

Tamura M, Ohgushi T, Ida TY.

Functional Ecology 34: 597-605 (2020)

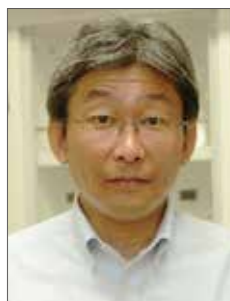
SELECTED PUBLICATIONS:

1. Seasonal variation in air temperature drives reproductive phenology of entomophilous plants in a cool-temperate mire community

Ida TY, Kudo G.

Botany, 99: 433-447 (2021)

2. Multi-cycle synchronous protandry in raceme-like inflorescences of a bumblebee-pollinated herb *Aconitum*



Genome structure in fungi. Fungal dimorphism

IWAGUCHI Shin-ichi / Associate Professor

iwaguchi@cc.nara-wu.ac.jp

EDUCATION: 1992 Graduate School of Medicine, Nagoya University
1988 Graduate School of Science, Okayama University

ACADEMIC DEGREES: Ph.D. Nagoya University

SUBJECT OF RESEARCH:

1. Chromosome rearrangement in Fungi chromosome rearrangement Electrophoretic Karyotype *Candida albicans*
2. Ploidy shift in Fungi *Candida albicans* Ploidy Loss of heterozygosity
3. Dimorphism in fungi Dimorphism Subtractive DNA cloning *Candida tropicalis*

Medical Mycology, 46(4): 655-663 (2008)

2. Chromosome translocation induced by the insertion of the URA blaster into the major repeat sequence (MRS) in *Candida albicans*

Iwaguchi S, Suzuki M, Sakai N, Nakagawa Y, Magee PT, Suzuki T.

YEAST, 21: 619-634 (2004)

SELECTED PUBLICATIONS:

1. The loss of parts of chromosome 7 followed by the insertion of URA cassette into RB2 on MRS in *Candida albicans* strain CAI-4

Iwaguchi S, Suzuki M, Sakai N, Yokoyama K, Suzuki T.

3. Pseudohyphal growth induced by exposure of yeast cells to subinhibitory levels of antifungal azoles in *Candida tropicalis*

Suzuki T, Iwaguchi S, Kamihara T.

Plant Morphology, 13(1): 2-10 (2001)



Biomembrane biogenesis and transport in eukaryotic cells

KAGIWADA Satoshi / Professor

kagiwada@cc.nara-wu.ac.jp

EDUCATION: 1993 Biophysics, Graduate School of Science, Kyoto University
1988 Faculty of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

Structure and function of biomembrane

Kagiwada S, Uno Y, Nishii I, Noguchi T.

Algal Research, 8: 214-223 (2015)

SELECTED PUBLICATIONS:

1. Induction of intranuclear membranes by overproduction of Opi1p and Scs2p, regulators for yeast phospholipid biosynthesis, suggests a mechanism for Opi1p nuclear translocation

Masuda M, Ohshima A, Noguchi T, Kagiwada S.

Journal of Biochemistry, 159(3): 351-361 (2015)

3. Coordinated regulation by two VPS9 domain-containing guanine nucleotide exchange factors in small GTPase Rab5 signaling pathways in fission yeast.

Kagiwada S, Tsukamoto Y, Shimazu S, Takegawa K, Noguchi T, Miyamoto M.

Biochemistry and Biophysics Research Communications, 458(4): 802-809 (2015)

2. Colony sheath formation is accompanied by shell formation and release in the green alga *Botryococcus braunii* (race B)



Studies on biodiversity and the maintaining mechanisms in freshwater ecosystems

KATANO Izumi / Associate Professor

katano@cc.nara-wu.ac.jp

EDUCATION: 2004 Graduate school of Human Culture, Nara Women's University
1998 Faculty of Science, Nara Women's University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

1. Studies for biodiversity-environment interactions in freshwater ecosystems
2. Conservation and restoration in river ecosystems
3. Biodiversity conservation in SATOYAMA ecosystems

2. Effects of stream grazers with different functional traits on the spatial heterogeneity of periphyton mats

Katano I, Doi H.

PeerJ 7:e6747 (2019)

SELECTED PUBLICATIONS:

1. Effects of sediment replenishment on riverbed environments and macroinvertebrate assemblages downstream of a dam

Katano I, Negishi JN, Minagawa T, Doi H, Kawaguchi Y, Kayaba Y.

Scientific Reports 11, 7525 (2021)

3. Environmental DNA method for estimating salamander distribution in headwater streams, and a comparison of water sampling methods

Katano I, Harada K, Doi H, Souma R, Minamoto T.

PLOS One, 12: e0176541 (2017)



Physiological analysis of non-visual photoreception in lower vertebrates

KAWANO-YAMASHITA Emi / Associate Professor

kawano@cc.nara-wu.ac.jp

EDUCATION: 2006 Graduate School of Humanities and Sciences, Nara Women's University
2001 Faculty of Science, Nara Women's University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

Physiological analysis of non-visual photoreception in lower vertebrates

Koyanagi M, Wada S, Kawano-Yamashita E, Hara Y, Kuraku S, Kosaka S, Kawakami K, Tamotsu S, Tsukamoto H, Shichida Y, Terakita A.
BMC Biol., 13: 73 (2015)

SELECTED PUBLICATIONS:

1. Activation of transducin by bistable pigment parainopsin in the pineal organ of lower vertebrates. Kawano-Yamashita E, Koyanagi M, Wada S, Tsukamoto H, Nagata T, Terakita A. PLOS ONE, 10 (10): e0141280 (2015)

3. The evolution and diversity of pineal and parapineal photopigments. Kawano-Yamashita E, Koyanagi M, Terakita A. Evolution of visual and non-visual pigments. Springer, 4: 1-21 (2014)

2. Diversification of non-visual photopigment parainopsin in spectral sensitivity for diverse pineal functions.



Plant-microbe interaction, symbiotic and non-symbiotic nitrogen fixation

SAEKI Kazuhiko / Professor

ksaeki@cc.nara-wu.ac.jp

EDUCATION: 1986 Course for Biological Chemistry, Graduate School of Science, Osaka University

ACADEMIC DEGREES: Ph.D. Osaka University

SUBJECT OF RESEARCH:

Genome biology of nitrogen-fixing symbiosis; rhizobium plant-microbe interaction symbiosis

Microbes Environ., 28(2): 275-278 (2013)

SELECTED PUBLICATIONS:

1. Hijacking of leguminous nodulation signaling by the rhizobial type III secretion system
Okazaki S, Kaneko T, Sato S, Saeki K.
Proc Natl Acad Sci U S A., 110(42): 17131-17136 (2013)

3. Rhizobial measures to evade host defense strategies and endogenous threats to persistent symbiotic nitrogen fixation: a focus on two legume-rhizobium model systems
Saeki K.
Cell Mol Life Sci., 68(8): 1327-1339 (2011)

2. Commonalities and differences among symbiosis islands of three *Mesorhizobium loti* strains
Kasai-Maita H, Hirakawa H, Nakamura Y, Kaneko T, Miki K, Maruya J, Okazaki S, Tabata S, Saeki K, Sato S.



Evolution of developmental complexities in volvocine algae

NISHII Ichiro / Professor

ichiron@cc.nara-wu.ac.jp

EDUCATION: 1999 Physiology, Graduate School of Science, Osaka University
1993 Department of Biology, Faculty of Science, Osaka University

ACADEMIC DEGREES: Ph.D. Osaka University

SUBJECT OF RESEARCH:

Green algae, *Volvox* and volvocine algae, multicellularity, folding of multicellular sheet, morphogenesis, germsoma differentiation

multicellular green alga *Volvox carteri*.
S E Prochnik, J Umen, A M Nedelcu, A Hallmann, S M Miller, Nishii I, P Ferris, et al.
Science, 329: 223-226 (2010)
DOI: 10.1126/science.1188800

SELECTED PUBLICATIONS:

1. Colony sheath formation is accompanied by shell formation and release in the green alga *Botryococcus braunii* (race B).
Uno Y, Nishii I, Kagiwada S, Noguchi T.
Algal Research, 8:214-223 (2015)
DOI: 10.1016/j.algal.2015.02.015

3. *Volvox*: Simple steps to developmental complexity?
Nishii I, S M Miller.
Current Opinion in Plant Biology, 13: 646-653 (2010)
DOI: 10.1016/j.pbi.2010.10.005

2. Genomic analysis of organismal complexity in the



Morphogenesis of higher plants and yeasts

SAKAGUCHI Shuichi / Associate Professor

guchi@cc.nara-wu.ac.jp

EDUCATION: 1988 Botany, Graduate School of Science, The University of Tokyo
1982 Department of Biology (Botany), Faculty of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

1. Microtubular structures in shoot meristematic cells
2. 3-D analysis of plant cell shapes by micro X-ray computer tomography
3. Clonal analysis of leaves using a GUS-Ac transgene
4. Correlation of phyllotaxis and localization of Pin1 auxin transporter in shoot apical meristems
5. Posture control of zygomorphic flowers by torsion of flower stalks in response to gravity
6. Role for calcium in polarized growth in yeasts

SELECTED PUBLICATIONS:

1. Microtubules direct the layered structure of angiosperm shoot apical meristems (SAMs)
Sakaguchi S. *In*: Atlas of plant cell structure. (Noguchi T. et al. (ed))
Springer, 6 Cytoskeletons: pp. 134-135 (2014)

2. Ion gradients in xylem exudate and guttation fluid related to tissue ion levels along primary leaves of barley
Nagai M, Ohnishi M, Uehara T, Yamagami M, Miura E, Kamakura M, Kitamura A, Sakaguchi S, Sakamoto W, Shimmen T, Fukaki H, Reid Robert J, Furukawa A, Mimura T.
Plant, Cell & Environment, 36(10): 1826-1837 (2013)



Physiological and Biochemical studies on plant organelles, photosynthesis, and allelopathy

SAKAI Atsushi / Professor

sakai@cc.nara-wu.ac.jp

EDUCATION: 1991 Division of Plant Sciences, Graduate School of Science, The University of Tokyo
1989 Faculty of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

1. Allelopathy
2. Hyper Sensitive Response
3. Function of Organelle Genomes
4. Photosynthesis and Respiration in Plants

Cytologia, 80: 1-9 (2015)

3. Effects of chloroplast dysfunction on mitochondria: white sectors in variegated leaves have higher mitochondrial DNA levels and lower dark respiration rates than green sectors.

SELECTED PUBLICATIONS:

1. Monoterpenes of *Salvia leucophylla*. Sakai A, Yoshimura H. Current Bioactive Compounds, 8: 90-100 (2012)

Toshiji H, Katsumata T, Takusagawa M, Yusa Y, Sakai A. Protoplasma, 249: 805-817 (2011)

2. Cytological studies on proliferation, differentiation, and death of BY-2 cultured tobacco cells Sakai A, Takusagawa M, Nio A, Sawai Y.



Ecological and evolutionary studies on populations and communities

SATO Hiroaki / Associate Professor

scarab@cc.nara-wu.ac.jp

EDUCATION: 1987 Division of Environment Conservation, Graduate School of Environmental Science, Hokkaido University

1982 Zoological Institute, Faculty of Science, Hokkaido University

ACADEMIC DEGREES: Ph.D. Hokkaido University

SUBJECT OF RESEARCH:

1. Ecological and taxonomic studies of leafminers
2. Interactions between animals and plants
3. Behavioral and community ecology of dung beetles

Japan

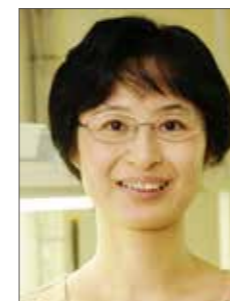
Sato H, Nasu Y, Murahana S, Matsumuro H, Ueda K European Journal of Entomology, 116: 442-449 (2019)

SELECTED PUBLICATIONS:

1. Intense browsing by sika deer (*Cervus nippon*) drives the genetic differentiation of hairy nettle (*Urtica thunbergiana*) populations Kohyama TI, Yoshida M, Kimura MT, Sato H. Oecologia, 196: 1095-1106 (2021)

3. Differential performance of red admiral butterflies on variants of Japanese nettle populations under intense versus low pressure from sika deer Kohyama T, Horikawa C, Kawai S, Shikata M, Kato T, Sato H. Ecosphere, 8: e01568 (2017)

2. Differences in the niches of keratin/chitin feeding moths (Lepidoptera: Tineidae) in bird nests in central



Environmental regulation of plant growth and development

SATO-NARA Kumi / Associate Professor

kumisn@cc.nara-wu.ac.jp

EDUCATION: 1997 Division of Biology, Graduate School of Science, Tohoku University

ACADEMIC DEGREES: Ph.D. Tohoku University

SUBJECT OF RESEARCH:

1. Light regulation of aquaporins and water transport in *Arabidopsis thaliana*.
2. Environmental stresses and plant growth
3. Roles of pre-mRNA splicing and microRNAs in plant development

2. Diurnal changes in shoot water dynamics are synchronized with hypocotyl elongation in *Arabidopsis thaliana*.

Ishikawa H, Sato-Nara K, Takase T, Suzuki H.

Plant Signaling & Behavior, 8(3) eLocation ID: e23 (2013)

SELECTED PUBLICATIONS:

1. Accumulation of TIP2;2 aquaporin during dark adaptation is partially phyA dependent in roots of *Arabidopsis* seedlings Uenishi Y, Nakabayashi Y, Tsuchihira A, Takusagawa M, Hashimoto K, Maeshima M, Sato-Nara K. Plants, 3: 177-195 (2014)

3. Functionally diversified members of the MIR165/6 gene family regulate ovule morphogenesis in *Arabidopsis thaliana*.

Hashimoto K, Miyashima S, Sato-Nara K, Yamada T, Nakajima K.

Plant and Cell Physiology, 59(5): 1017-1026(2018)



Studies on cell-cell interaction and the molecular mechanism of sexual reproduction in ciliates

SUGIURA Mayumi / Associate Professor

msugi@cc.nara-wu.ac.jp

EDUCATION: 2003 Graduate School of Human Culture, Nara Women's University

1998 Faculty of Science, Nara Women's University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

1. Molecular mechanism of induction of sexual reproduction in the ciliates
2. Sexual maturation and mating-type determination in the ciliate *Blepharisma*

2. Novel specificity of IDO enzyme involved in the biosynthesis of mating pheromone in the ciliate *Blepharisma stoltei*.

Sugiura M, Yuasa HJ, Harumoto T.

Protist 168(6): 686-696 (2017)

SELECTED PUBLICATIONS:

1. A single amino acid residue regulates the substrate affinity and specificity of indoleamine 2,3-dioxygenase. Yuasa HJ, Sugiura M, Harumoto T. Arch. Biochem. Biophys. 640: 1-9 (2018)

3. Alternative gene expression in type I and type II cells may enable further nuclear changes during conjugation of *Blepharisma japonicum*.

Sugiura M, Tanaka Y, Suzaki T, Harumoto T.

Protist, 163(2): 204-216 (2012)



Functional analysis of small G protein in membrane traffic, chrathrin assembly protein and protein phosphatase in diseases, and mitochondrial ubiquitin ligase.

WATANABE Toshio / Professor / toshiwatana@cc.nara-wu.ac.jp

EDUCATION: 1987 Graduate School of Science, The University of Tokyo
1982 Biochemistry and Biophysics, Faculty of Science, The University of Tokyo
ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

1. Roles of small G protein Arfs and their GAP in development
2. Roles of PICALM and protein phosphatase in diseases
3. Roles of mitochondrial ubiquitin ligase in development and growth

2. Chlorpromazine eliminates acute myeloid leukemia cells by perturbing subcellular localization of FLT3-ITD and KIT-D816V.
Rai S, Tanaka H, Suzuki M, Espinoza JL, Kumode T, Tanimura A, Morita Y, Tatsumi Y, Yokota T, Oritani K, Watanabe T, Kanakura Y, Matsumura I.
Nature Communications 11(1):4147 (2020)

SELECTED PUBLICATIONS:

1. Arf1 and Arf6 synergistically maintain survival of T cells during activation
Sumiyoshi M, Kotani Y, Ikuta Y, Suzue K, Ozawa M, Katakai T, Yamada T, Kanaho Y, Watanabe T, Matsuda S.
J Immunology 206, 366-375 (2021)

3. Ppp6c haploinsufficiency accelerates UV-induced BRAF(V600E)-initiated melanomagenesis
Kanazawa K, Kishimoto K, Nomura M, Kurosawa K, Kato H, Inoue Y, Miura K, Fukui K, Yamashita Y, Sato, I, Tsuji H, Watanabe T, Tanaka T, Yasuda J, Tanuma N, and Shima H.
Cancer Science 112, 2233-2244 (2021)



Ecological studies on freshwater and marine animals

**YUSA Yoichi / Professor
yusa@cc.nara-wu.ac.jp**

EDUCATION: 1995 Zoology, Graduate School of Science, Kyoto University
ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

1. Ecological studies on aquatic invertebrates
2. Management of aquatic invertebrate pests

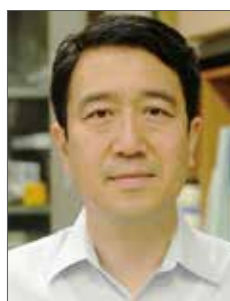
Yusa Y, Kitaura J, Cazzaniga N J
Malacologia, 59: 239-245 (2016)

SELECTED PUBLICATIONS:

1. Roles of the seasonal dynamics of ecosystem components in fluctuating indirect interactions on a rocky shore
Wada Y, Iwasaki K, Ida T Y, Yusa Y.
Ecology, 98:1093-1103 (2017)
DOI: 10.1002/ecy.1743

3. Plastic sexual expression in the androdioecious barnacle *Octolasmis warwickii* (Cirripedia: Pedunculata)
Wijayanti H, Yusa Y.
Biological Bulletin, 230: 51-55 (2016)

2. Variation in the sex ratio of apple snails (*Pomacea* spp.) in their native range



Phylogeny, classification and ultrastructure of protists

**YOSHIKAWA Hisao / Associate Professor
h.yoshikawa@cc.nara-wu.ac.jp**

EDUCATION: 1986 Graduate School of Medicine, Kyoto Prefectural University of Medicine
1982 Biology, Graduate School of Science and Technology, Konan University
ACADEMIC DEGREES: Ph.D. Kyoto Prefectural University of Medicine

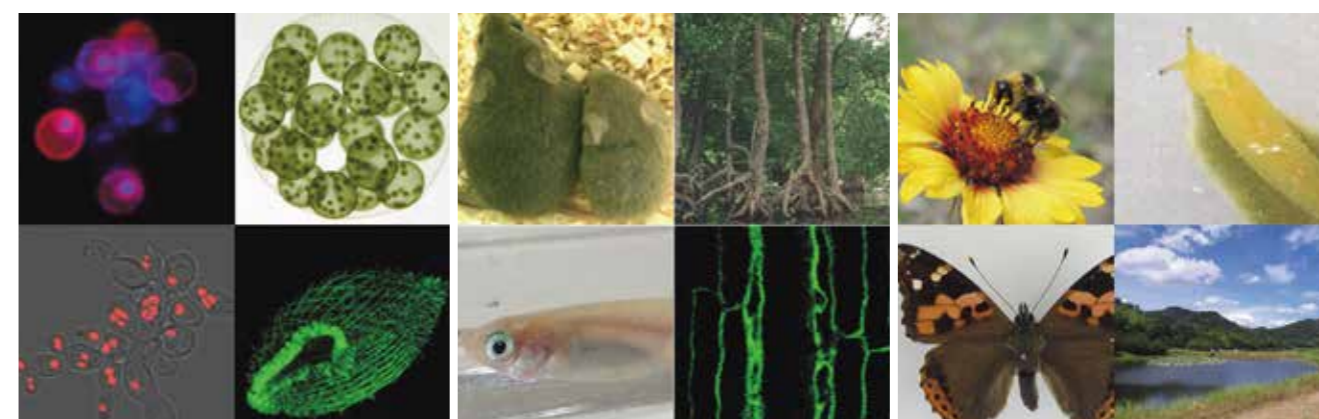
SUBJECT OF RESEARCH:

1. Molecular phylogenetic study on the genus *Blastocystis*.
2. Molecular epidemiological research on human and animal *Blastocystis* infections.

- Yoshikawa H, Tokoro M, Nagamoto T, Arayama S, Puji B S Asih, Ismail E Rozi, Din Syafruddin
Parasitology International, 65: 780-784 (2016)
3. Genetic Diversity of *Blastocystis* in livestock and zoo animals.
Alfellani M A, Taner-Mulla D., Jacob A S, Imeede C A, Yoshikawa H, Stensvold C R, Clark C G.
Protist, 154: 497-509 (2013)
 4. Blastocystis: Pathogen or Passenger?
Mehlhorn H, Tan K S W, Yoshikawa H.
Parasitology Research Monographs 4, Springer, (Ed) (2012)

SELECTED PUBLICATIONS:

1. *Blastocystis* phylogeny among various isolates from humans to insects.
Yoshikawa H, Koyama Y, Tsuchiya E, Takami K.
Parasitology International, 65: 750-759 (2016)
2. Molecular survey of *Blastocystis* sp. from humans and associated animals in an Indonesian community with poor hygiene.



Molecular and Cellular Biology Unit

Functional Biology of Multicellular Organisms Unit

Ecology Unit



Analysis of atmospheric chemical and physical processes utilizing satellite measurements

HAYASHIDA Sachiko / Professor

sachiko@ics.nara-wu.ac.jp

EDUCATION: 1985 Graduate School of Science of Atmosphere and Hydrosphere, Nagoya University
1980 Faculty of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Nagoya University

SUBJECT OF RESEARCH:

1. Study of physical and chemical processes of atmospheric minor species
2. Remote sensing of atmospheric minor species

2. Observation of ozone enhancement in the lower troposphere over East Asia from a space-borne ultraviolet spectrometer

Hayashida S, Liu X, Ono A, Yang K, Chance K. Atmospheric Chemistry and Physics, 15: 9865–9881 (2015)

SELECTED PUBLICATIONS:

1. Study of lower tropospheric ozone over central and eastern China: Comparison of satellite observation with model simulation

Hayashida S, Kayaba S, Deushi M, Yamaji K, Ono A, Kajino M, Sekiyama T T, Maki T, Liu X.

"Land-Atmospheric Interactions in Asia", Book Series: Springer Remote Sensing/Photogrammetry, Editors: Vadrevu K P, Ohara T, Justice C, in press (2017)

3. Methane concentrations over Monsoon Asia as observed by SCIAMACHY: Signals of methane emission from rice cultivation,

Hayashida S, Ono A, Yoshizaki S, Frankenberg C, Takeuchi W, Yan X.

Remote Sensing of Environment, 139: 246-256 (2013)



Studies on the atmospheric environment with analyses of meteorological data

KUJI Makoto / Associate Professor

makato@ics.nara-wu.ac.jp

EDUCATION: 1993 Geophysics, Graduate School of Science, Tohoku University

ACADEMIC DEGREES: Ph.D. Tohoku University

SUBJECT OF RESEARCH:

1. Remote sensing of cloud, aerosol, and water vapor
2. Atmospheric radiation and energy budget

Kitakoga S, Inoue Y, Kuji M, Hayasaka T.

J. Meteor. Soc. Japan, 92A: 57-69 (2014)

SELECTED PUBLICATIONS:

1. Cloud fractions estimated from shipboard whole-sky camera and ceilometer observations

Kuji M, Fujimoto R, Miyagawa M, Funada R, Hori M, Kobayashi H, Koga S, Matsushita J, Shiobara M.

Trans. JSASS Aerospace Tech. Japan, 14: pp.7 (2016)

3. Development of a cloud detection method from whole-sky color images

Yabuki M, Shiobara M, Nishinaka K, Kuji M.

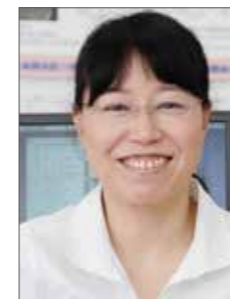
Polar Science, 8: 315-326 (2014)

2. Characteristics of aerosol properties of haze and yellow sand examined from SKYNET measurements over East China Sea

4. Relationship between trace gases and aerosols from biomass burning in Southeast Asia using satellite and emission data

Azuma Y, Nakamura M, Kuji M.

Proc. SPIE, 8523: pp.8 (2012)



Studies on environmental changes over land with analyses of satellite images

MURAMATSU Kanako / Professor / muramatu@ics.nara-wu.ac.jp

EDUCATION: 1993 Graduate school, Human Life and Environmental Science Course, Nara Women's University.

1989 Physics, Graduate school of Science, Nara Women's University

ACADEMIC DEGREES: Ph.D. Nara Women's University

SUBJECT OF RESEARCH:

Environmental Science, Remote Sensing, Vegetation change detection, Estimation of Gross Primary Production, Land Cover

southern Kyoto prefectures using multitemporal ALOS/AVNIR-2 data.

Hanaki N, Muramatsu K, Ochiai F, Soyama N, Daigo M, Tadono T.J.

The remote sensing society of Japan, 35(2): 77-88 (2015) In Japanese.

SELECTED PUBLICATIONS:

1. Determination of parameters for shrubs in the global gross primary production capacity estimation algorithm

Mineshita Y, Muramatsu K, Soyama N, Thanyapraneekul J, Daigo M. Journal of the Remote Sensing Society of Japan 36(3): 236-246 (2016)

3. Algorithm developing of gross primary production from it's capacity and a canopy conductance index using flux and global observing satellite data.

Muramatsu K, Furumi S, Daigo M.

Proc. of SPIE, Vol. 9637, ISBN: 9781628418477, Remote Sensing for Agriculture, Ecosystems, and Hydrology XVII 9637 (2015)

2. Determination of bamboo distribution in Nara and

Studies on planetary atmospheres using observational data and numerical simulations

NOGUCHI Katsuyuki / Assistant Professor

nogu@ics.nara-wu.ac.jp

EDUCATION: 2004 Division of Earth and Planetary Science, Graduate School of Science, The University of Tokyo
2000 Graduate School of Science, The University of Tokyo

ACADEMIC DEGREES: Ph.D. The University of Tokyo

SUBJECT OF RESEARCH:

Atmospheric Science

Noguchi K, et al.

J. Geophys. Res. Planets, 122, 912-926 (2017)

SELECTED PUBLICATIONS:

1. Generation of gravity waves from thermal tides in the Venus atmosphere

Sugimoto N, Fujisawa Y, Kashimura H, Noguchi K, Kuroda T, Takagi T, Hayashi Y-Y.

Nature Communications, 12, 3682 (2021)

3. Estimation of changes in the composition of the Martian atmosphere caused by CO₂ condensation from GRS Ar measurements and its application to the rederivation of MGS radio occultation measurements
Noguchi K et al.

J. Geophys. Res. Planets, 119(12): 2510-2521 (2014)

2. Role of stationary and transient waves in CO₂ supersaturation during northern winter in the Martian atmosphere revealed by MGS radio occultation measurements



Mathematical approaches to environmental risk assessment and modeling microbial biogeochemistry

SETO Mayumi / Assistant Professor

seto@ics.nara-wu.ac.jp

EDUCATION: 2008 Division of Earth and Planetary Sciences, Graduate School of Sciences, Kyushu University

ACADEMIC DEGREES: Ph.D. Kyushu University

SUBJECT OF RESEARCH:

1. Thermodynamic and kinetic limitations on microbial metabolism and growth
2. Risk assessment for aquatic ecosystems
3. Risk assessment and cost-benefit analysis of food safety policies

2. Sample size allocation for food item radiation monitoring and safety inspection

Seto M, Uriu K.

Risk Analysis, 35(3): 409-422 (2015)

DOI: 10.1111/risa.12276

SELECTED PUBLICATIONS:

1. Perspectives for ecosystem management based on ecosystem resilience and ecological thresholds against multiple and stochastic disturbances

Sasaki T, Furukawa T, Iwasaki Y, Seto M, Mori S A.

Ecological Indicators, 57: 395-408 (2015)

DOI: 10.1016/j.ecolind.2015.05.019

3. The Gibbs free energy threshold for the invasion of a microbial population under kinetic constraints

Seto M.

Geomicrobiology Journal, 31(8): 645-653 (2014)



Modeling dynamics and evolution of lateral asymmetry in fish

TAKAHASHI Satoshi / Professor

takahasi@ics.nara-wu.ac.jp

EDUCATION: 1990 Graduate School of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

1. Mathematical model of lateral asymmetry polymorphisms in fish
2. Dimension spectra of fractals

2. Measuring and evaluating morphological asymmetry in fish: distinct lateral dimorphism in the jaws of scale-eating cichlids

Hata H, Yasugi M, Takeuchi Y, Takahashi S, Hori M.

Ecology and Evolution, 3: 4641-4647 (2013)

SELECTED PUBLICATIONS:

1. Laterality is universal among fishes but increasingly cryptic among derived groups

Hori M, Nakajima M, Hata H, Yasugi M, Takahashi S, Nakae M, Yamaoka K, Kohda M, Kitamura J, Maehata M, Tanaka H, Okada N, Takeuchi Y.

Zoological Science, 34(4): 267-274 (2017)

3. Sexual systems and dwarf males in barnacles: Integrating life history and sex allocation theories

Yamaguchi S, Yusa Y, Sawada K, Takahashi S.

J. Theor. Biol., 320: 1-9 (2013)



Mathematical and computational modeling of population, behavioral, and evolutionary biology

TAKASU Fugo / Professor

takasu@es.nara-wu.ac.jp, takasu@ics.nara-wu.ac.jp

EDUCATION: 1994 Graduate School of Science, Kyoto University

1990 Department of Biophysics, Faculty of Science, Kyoto University

ACADEMIC DEGREES: Ph.D. Kyoto University

SUBJECT OF RESEARCH:

1. Spatial population and evolutionary dynamics in continuous space
2. Theoretical study on avian brood parasitism
3. Evolutionary games in space

2. Spatially explicit model applied to pine wilt disease dispersal based on host plant infestation.

Nguyen TV, Park YS, Jeoung CS, Choi WI, Kim YK, Jung IH, Shigesada N, Kawasaki K, Takasu F, Chon TS.

Ecological Modelling 353:54-62 (2017).

SELECTED PUBLICATIONS:

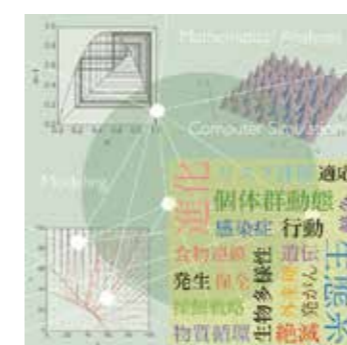
1. How can distinct egg polymorphism be maintained in the rufescent prinia (Prinia rufescens)-plaintive cuckoo (Cacomantis merulinus) interactions- a modeling approach.

Liang W, Yang C, Takasu F.

Ecology and Evolution 1-8 (2017).

3. Ancient origin and maternal inheritance of blue cuckoo eggs.

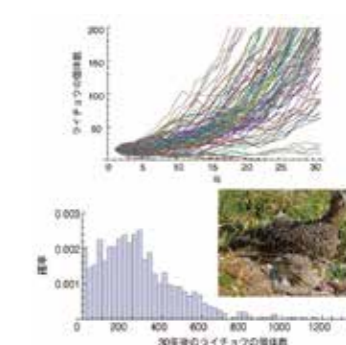
Fossøy F, Sorenson MD, Liang W, Ekrem T, Moksnes A, Møller AP, Ruttila J, Røskoft E, Takasu F, Yang C, Stokke BG. Nature Communications 7, Article number: 10272.



Modeling and simulation of life systems



Daily discussion in the laboratory



Population viability analysis of the Japanese rock ptarmigan



Field Practice of Forest Biology



Field Practice of Marine Biology



Field Practice of Freshwater Biology

NARA WOMEN'S UNIVERSITY



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Faculty of Science



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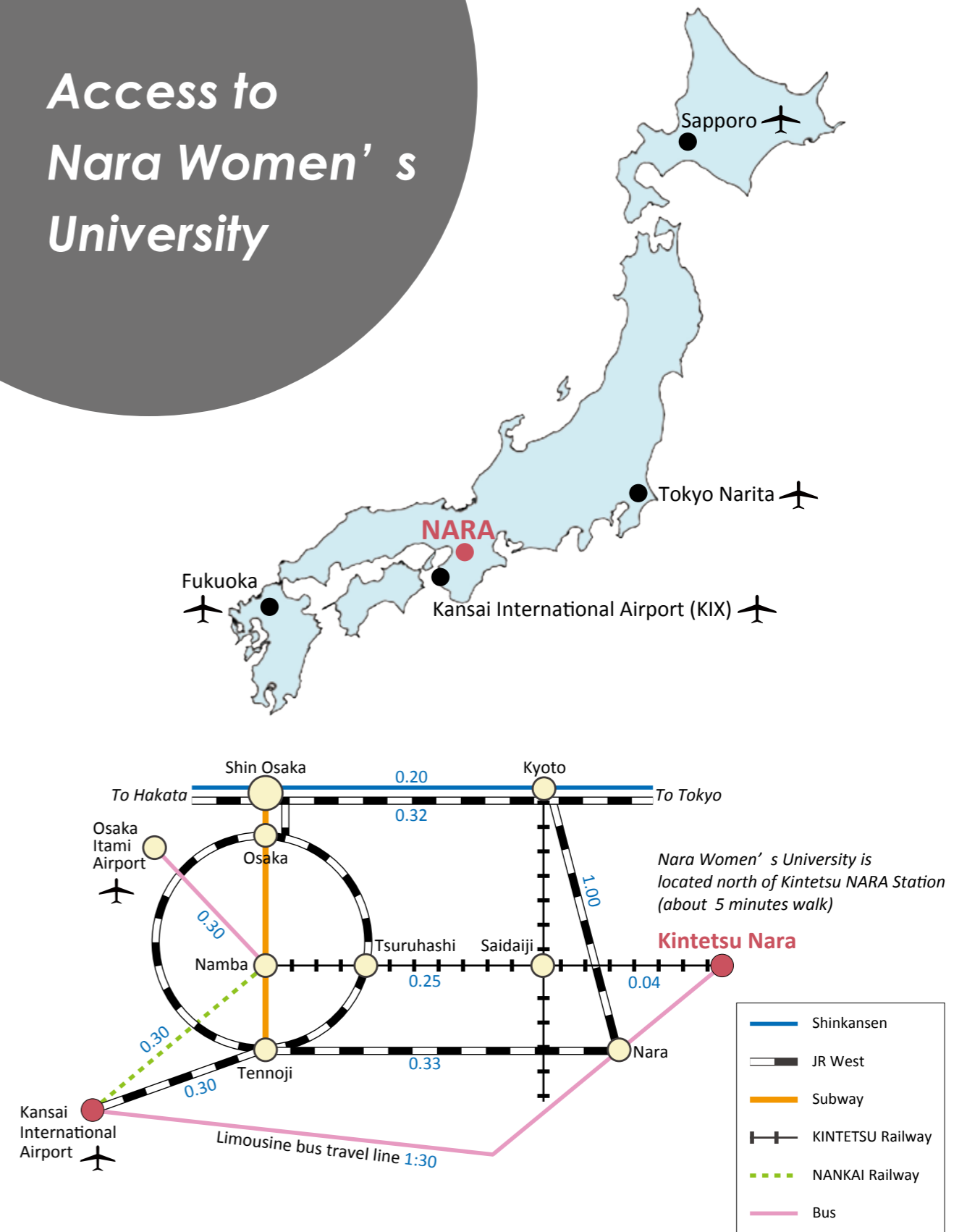


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Deer walking on the street

Access to Nara Women's University



Faculty of Science and Graduate School of Science
Nara Women's University
Issued in April, 2022



