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Time Studies ,  
 Creation and Exchange of Human Intellect



**The Research Institute for Time Studies**

The Research Institute for Time Studies (RITS) at Yamaguchi University was established in April 2000 proposed by a former president Dr. Heisuke Hironaka, a Fields Prize winner. The aim is to create Time Studies as a new interdisciplinary area of study by understanding nature, human, society, and culture from the viewpoint of time, and for society to benefit from the research results. The activities of RITS provided an important opportunity for the establishment of the Japanese Society for Time Studies.

RITS consists of the director, seven research staff members, and administrative staff. About 100 researchers on campus and outside of Yamaguchi University are involved in RITS activities in various ways.

The lectures include topics on time-related areas such as developmental biology, evolution, the birth of the universe, and sociological time. In particular, students are required to understand the interaction between social time and biological time, and to consider the significance and issues of time in human life.

The research organization of RITS consists of four study groups. The researchers work in a wide range of fields related to time studies such as biology, medicine, sociology, philosophy, literature, geology, psychology, economics, and social anthropology.

**Dr. Heisuke Hironaka**

Dr. Heisuke Hironaka is a mathematician. He was born in 1931 in Yamaguchi prefecture. He received his Ph.D. in 1960 from Harvard University. He was awarded the Fields Medal in 1970. He was a president of Yamaguchi University (1996-2002).



**Additional Members**

Joint Professor : 14  
 Guest Professor : 9



**Shoichi KAI**  
(Director)

**Resume:** Professor Kai was born in 1947. He received his PhD degree from Kyushu University in 1977. Since then he worked at Kyushu University as a research associate (Department of Electronics), at Stanford University as a postdoc (Department of Chemistry from 1979 to 1981), at Kyushu Institute of Technology as an associate professor and later full professor of Electrical Engineering. From 1994 he was a professor of Applied Physics at Kyushu University and retired in 2012 (Professor emeritus of Kyushu University). He has currently joined at Yamaguchi University and served as the director of the Research Institute for Time Studies.

**Specialty:** Nonlinear dynamics, Pattern formation, Complex physics, Physics of Liquid crystals  
**Book:** World of Rhythm Phenomena, (Co-author), Pattern Formation (Co-author)  
Noise in Nonlinear Dynamical Systems (Co-author), etc.

**Papers:**

J.H. Huh, S. Kai: Colored Noise-Induced Threshold Shifts and Phase Diagrams in Electroconversions, Journal of the Physical Society of Jpn., Vol.83, pp.063061-1-4, 2014  
M. Suzuki, H. Sueto, Y. Hosokawa, N. Muramoto, T. Narumi, Y. Hidaka, S. Kai, Duality of diffusion dynamics in particle motion in soft-mode turbulence, Physical Review E, Vol. 88, pp. 042147-1-7, 2013  
T. NARUMI, J. YOSHITANI, M. SUZUKI, Y. HIDAKA, F. NUGROHO, T. NAGAYA, S. KAI, Memory Function of Turbulent Fluctuations in Soft-Mode Turbulence, Physical Review E, Vol. 87, pp. 012505-1-8, January, 2013  
G. MENG, T. YANAGIDA, M. KANAI, M. SUZUKI, K. NAGASHIMA, B. Xu, F. ZHUGE, A. KLAMCHUEN, Y. HE, S. RAHONG, S. KAI, T. KAWAI, Pressure-induced Evaporation Dynamics of Gold Nanoparticles on Oxide Substrates, Physical Review E, Vol. 87, pp. 012405-1-7, January, 2013



**Kenta FUJISAWA**  
(Professor)

**Resume:** Professor Fujisawa was born in Oita Prefecture in 1967. He obtained a PhD degree from the University of Tokyo Graduate School of Science. He worked at the Institute of Space and Astronautical Science as a COE researcher, at the Telecommunications Advancement Organization of Japan as a resident researcher, at the National Astronomical Observatory of Japan as an assistant, joined Yamaguchi University as an assistant professor and was appointed to current position since April 2010.

**Specialty:** Radio astronomy, space physics

**Book:** Introduction to Time Studies (Co-author)

**Papers:**

Fujisawa, Kenta et al., PASJ, 66, id.1095, 2014  
Fujisawa, Kenta et al., PASJ, 66, id.788, 2014  
Fujisawa, Kenta et al., PASJ, 66, id.31, 2014  
Sugiyama, K., Fujisawa, K. et al., A&A, 562, id.A82, 2014



**Makoto AKASHI**  
(Professor)

**Resume:** Professor Akashi was born in Asahikawa City of Hokkaido Prefecture in December, 1973 and graduated from Hokkaido Asahikawa Higashi High School. He obtained a BSc(Agr) degree from Kyoto University Faculty of Agriculture and PhD degree from Kyoto University Graduate School of Science (Eisuke Nishida Lab). He served as a research fellow of the Japan Society for the Promotion of Science (DC2, PD, SPD), worked at the Department of Cardiovascular Medicine, Saga University as a researcher and, since October 2009, joined the Research Institute for Time Studies.

**Specialty:** Chronobiology, molecular biology, cell biology, time medicine

**Papers:**

Matsumura. R. et al. The Journal of Biological Chemistry (JBC) 2014; 289 (46): 32064-32072  
Sato. M. et al. Cell Reports (CELL PRESS) 2014; 8(2): 393-401  
Akashi. M. et al. Cell Reports (CELL PRESS) 2014; 7(4): 1056-1064  
Matsumura. R. et al. Scientific Reports 2014; 4: Article number 4032



**Takuo AOYAMA**  
(Associate Professor)

**Resume:** Associate Professor Aoyama was born in 1975. Withdrawal from the doctoral program with the completion of course requirements, Chiba University Graduate School. He served as a research fellow of the Japan Society for the Promotion of Science, joined the Research Institute for Time Studies of Yamaguchi University as a lecturer and was appointed as an associate professor since December 2009. He was awarded the Ishimoto Prize of the Philosophy of Science Society Japan for the following paper #1.

**Specialty:** Philosophy, ethics

**Books:** Lectures on Analytic Philosophy (Chikuma-shobo Ltd.), The Philosophy of Time Travel (New Edition) (Chikuma-shobo Ltd.), Philosophizing of the Philosophy of !! (Co-author, Kodansha Ltd.), Readings in Contemporary Metaphysics (Co-translation/edition, Keiso-shobo Ltd.), etc.

**Papers:**

Can We Define Changes of Tense? – The Insight and Failure of McTaggart's Argument, Journal of the Philosophy of Science Society Japan, Vol.37-2.  
Objective Present and Correlative Simultaneity between Mind and Body, Journal of the Japan Association for Philosophy of Science, No.104.



**Hiroki MIGITA**  
(Associate Professor)

**Resume:** Lecturer Migita was born in Shimane Prefecture in 1973. He completed and received approval of doctoral research guidance in Kyoto University Graduate School of Letters (ABD). Doctor of Literature. He served as a research fellow of the Japan Society for the Promotion of Science, worked at Otani University as an assistant professor and, since April 2012, joined the Research Institute for Time Studies.

**Specialty:** Sociology (theory of celebration, history of mentalities)

**Book:** Culture of Late-Night Snack (Co-author), Seikyusha Ltd., 2010.

**Paper:**

A Reconsideration on the Vogue of the Evolutionary Theory in Intellectuals of the Meiji Era, Journal of History of Science Japan, 225, 2003.



**Masahiko TERAO**  
(Assistant Professor)

**Resume:** Assistant professor Terao was born in Hiroshima Prefecture in 1981. He received his PhD degree from Kwansai Gakuin University. He served as a research fellow of the Japan Society for the Promotion of Science, worked at The University of Tokyo as postdoctoral fellow and, since October 2015, joined the Research Institute for Time Studies.

**Specialty:** Experimental Psychology, Vision Science, Cognitive Neuroscience, Psychophysics, Eye movements

**Representative Papers:**  
Terao, M., Murakami, I. & Nishida, S. (2015). Enhancement of motion perception in the direction opposite to smooth pursuit eye movement, Journal of Vision, 15, pp. 2-11.

Terao, M. & Murakami, I. (2011). Compensation for equiluminant color motion during smooth pursuit eye movement. Journal of Vision, 11, 1-12.  
Terao, M., Watanabe, J., Yagi, A., Nishida, S. (2008). Reduction of stimulus visibility compresses apparent time interval. Nature Neuroscience, 11, 541- 542.



**Miho SATO**  
(Specially Appointed full-time Assistant Professor)

**Resume:** Dr. Sato was born in 1982. She graduated from Yamaguchi Senior High School. She obtained a Bachelor's degree from Okayama University Faculty of Sciences, Master's degree from Kobe University Graduate school of Medicine and PhD from University of Kyoto Graduate school of Pharmaceutical Sciences. She worked at Kyoto University as a Research Fellow, at Trans Genic Inc. as a staff for research and development and joined the Research Institute for Time Studies of Yamaguchi University as a Research Fellow. She was appointed to current position on April 2014.

**Specialty:** Chronobiology, Histology, Molecular biology

**Papers:**

M. Sato et al., The Role of the Endocrine System in Feeding-Induced Tissue-Specific Circadian Entrainment. Cell Reports (Cell Press) 2014; 8(2): 393-401  
M. Sato et al., Possible contribution of chronobiology to cardiovascular health. Frontiers Physiol.(Frontiers) 2014; 409 (4)  
M. Sato et al., Transportin 1 in the mouse brain: Appearance in regions of neurogenesis, cerebrospinal fluid production/sensing, and circadian clock. J Comp Neurol.(Wiley-Liss) 2011; 519(9)1770-80



**Serge TISHCHENKO**  
(Specially Appointed full-time Associate Professor)

**Resume:** Associate Professor Tishchenko was born in Moscow (Russia) in 1985. He received his PhD Degree in Applied Mathematics with honors from University Pierre et Marie Curie in Paris in 2009. He is a former Intel Achievement Award twice winner and ISEF Grand Award in Mathematics winner.

In 2015 he joined the Research Institute for Time Studies of Yamaguchi University as Associate Professor. Before he was Associate Professor and Laboratory Managing Director at the Laboratory for Innovative Development at Moscow State University in Russia. His most important results are the N-separator theorem in generalisation of the Lipton-Tarjan Separator in applied mathematics and networks methods in forecasting regional and national economics.

**Specialty:** Applied mathematics, graph theory, economic networks, innovation economics, sociophysics

**Books:**  
Economics of Innovation (Co-author), ISBN 978-5-317-04845-7 (2014)  
Methods and Recommendations for Innovative Business (Co-author), ISBN 978-5-906099-27-3 (2013)

**Papers:**

J. Ramirez Alfonsin, S.A. Tishchenko, "Edge separator for quasi-binary trees", Discrete Applied Mathematics (2014).  
S.A. Tishchenko, "N-separators in planar graphs", Europ. J. Combinatorics, 33, 397-407 (2012).  
S.A. Tishchenko, "Maximum size of a planar graph with given degree and even diameter", Europ. J. Combinatorics, 33, 380-396 (2012).