

## CURRICULUM VITAE

February 10, 2025

**Hisa-aki SHINKAI, Dr.Sci. 真貝 寿明 博士 (理学)**

Professor, Osaka Institute of Technology, Japan

Currently also

Part-time Lecturer, Mukogawa Womens University  
武庫川女子大学非常勤講師



Born: November 3, 1966, Tokyo, Japan

### Address (office)

Office: Department of Information Science & Technology  
Osaka Institute of Technology  
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### Education

Undergraduate Course of Physics, Waseda University, Tokyo, Japan  
早稲田大学理工学部物理学科卒  
Okuma Memorial Scholarship 1986, 1987, 1989  
B.Sci., Waseda University, March 1990.

Graduate School, Department of Physics, Waseda University, Japan  
早稲田大学大学院理工学研究科物理学及应用物理学専攻 博士(理学)取得  
Okuma Memorial Scholarship 1993  
M.Sci., Waseda University, March 1992.  
Ph.D.Sci., Waseda University, March 1995.  
Ph.D. Supervisor – Prof. Kei-ichi Maeda

## PhD thesis

NUMERICAL ANALYSIS OF INHOMOGENEOUS SPACETIME STRUCTURE

March 1995, Waseda University, Tokyo, Japan

Supervisor: Prof. Kei-ichi Maeda(Waseda Univ.)

Refereed by : Prof. Katsuhiko Sato (Tokyo Univ.),  
Prof. Katsumi Yamada (Waseda Univ.),  
Prof. Tsuneaki Daishido (Waseda Univ.)  
and Prof. Ichiro Ohba (Waseda Univ.)

## Employment

April 1994 – October 1996

**Assistant Professor**, Department of Physics,  
Waseda University, Tokyo, Japan 早稲田大学理工学部助手

November 1996 – August 1999

**Postdoctoral Associate**,  
Department of Physics, Washington University, St. Louis, Missouri, USA  
(advisors: Prof. Clifford M. Will, Prof. Wai-Mo Suen) ワシントン大学博士研究員

September 1999 – August 2001

**JSPS Research Fellow Abroad; Postdoctoral Scholar**  
(Japan Society for the Promotion of Science) ペンシルベニア州立大学客員研究員  
Centre for Gravitational Physics and Geometry, Department of Physics,  
The Pennsylvania State University,  
University Park, Pennsylvania, USA  
(host: Prof. Abhay Ashtekar)

April 2001 – December 2003

**RIKEN Special Postdoctoral Researcher** 理化学研究所 基礎科学特別研究員  
Computational Science Division,  
Institute of Physical and Chemical Research (RIKEN)  
Wako, Saitama, 351-0198 Japan  
(advisor: Dr. Toshikazu Ebisuzaki)

January 2004 – January 2006

**Senior Scientist** 稲盛財団 (京都賞事務局) 職員  
Research Department, Inamori Foundation  
Shimogyo-ku, Kyoto, 600-8411 Japan

April 2006 – present

**Professor** (April 2012 – Present) 大阪工業大学 教授  
Director of International Center (April 2013 – March 2017) 国際センター長  
Associate Professor (April 2006 – March 2012) 准教授  
Faculty of Information Science and Technology,  
Osaka Institute of Technology  
Kitayama 1-79-1, Hirakata, Osaka 573-0196, Japan

**Position held (short period)**

July 1990 – September 1990

Fellow of International Association for Exchanging Students for Technical Experiences (IAESTE), visiting Delft University, The Netherlands

May and September 1993

Short-period Research Fellow at Yukawa Institute for Theoretical Physics, Kyoto University, Japan

October 2002

Visiting Associate in Physics in Division of Physics, Mathematics and Astronomy, California Institute of Technology, USA

January 2004 – present

**RIKEN Visiting Researcher**

理化学研究所 客員研究員

Ebisuzaki Computational Astrophysics group,  
Institute of Physical and Chemical Research (RIKEN)  
Wako, Saitama, 351-0198 Japan

April 2012 – Present

**Part-time Lecturer, Mukogawa Woman's University, Hyogo, Japan**  
武庫川女子大学非常勤講師**Professional Affiliations**

Chair of the board,

*KAGRA Scientific Congress (2017/8–2021/8)*

Referee contributions for

*Physical Review Letters (APS),*  
*Physical Review D (APS),*  
*Classical and Quantum Gravity (IoP),*  
*Journal of Physics: Conference Series (IoP),*  
*Progress for Theoretical and Experimental Physics (JPS),*  
*Journal of the Physics Society Japan (JPS),*  
*Journal of Applied Physics Society Japan (JAPS),*  
and *General Relativity and Gravitation (GRG)*Member of *Physical Society of Japan**Astronomical Society of Japan*  
*Japan Society for Industrial and Applied Mathematics*  
*American Physical Society (USA)*  
*American Association of Physics Teacher (USA)*  
*Institute of Physics (UK)*  
*International Society on General Relativity and Gravitation*  
*Rironkon (Japanese Theoretical Astrophysicists)*  
*Soryushiron group (Japanese Particle Physicists)*  
*The History of Science Society of Japan*  
*Japan Society for Teaching and Popularization of Astronomy*  
*Cosmic Ray Community*

Editorial board of

*New book review* column in *Butsuri* journal (Physical Society of Japan),  
2001-2003

Member of JSPS Postdoc Selection Committee (2012–2014, 2015–2017, 2018–2020).

## Research Interests in words

### General Relativity and Cosmology

Nonlinear Dynamics: Black Holes, Higher-dimensions

Numerical Relativity: Formulations and Simulations

Gravitational Waves: Relativistic Objects, Methods of Data Analysis

Relativistic Cosmology, Alternative Theories

### Astrophysics

Galaxy Formation, Black Holes Formation, Equation of State in Neutron Star

### History of Science

Astronomy and Physics in Japan

## Publication Summary

Research Articles (in Refereed Journals) : 97

(INSPIRE metrics):: Average citations per paper: 119.1, h-index:43

Research Articles (in Refereed Journals) in Japanese: 12

Invited Talks : 15 at International Conferences, 4 at Lectures, more+

Presentations at International Conferences : 74

Presentations at Meetings : 50 society meetings, 33 workshops, more+

Books (single author) : 9 textbooks, 3 general books

Books (co-author) : 5 textbooks, 1 general books

Books (translation) : 2 books

Books (co-translation) : 2 books

Articles in Popular Magazines & Newspapers, editorial contributions: many

## Grant/Funded (only ones as PI)

Grant-in-Aid for Scientific Research Fund of the Ministry of Education, Science, Sports and Culture 科研費奨励研究 (A) No. 07854014 (1995)

“New Developments in Numerical Relativity: Non-linear dynamical nature of gravitational wave”

一般相対論における新しい数値解析方法の開発及び重力波の非線型動的現象の解析

1 M yen (~\$10K), PI

Grant-in-Aid for Scientific Research Fund of Japan Society for the Promotion of Science, 科研費若手研究 (B) No. 14740179 (2002)

“Formulation of the Einstein Equation for Stable and Robust Simulations”

一般相対論に於ける数値計算を安定化させる数学的背景の解明及びその実証と応用

3.5 M yen (~\$30K), PI (2002/4-2005/3)

Grant-in-Aid for Scientific Research Fund of Japan Society for the Promotion of Science, 科研費基盤研究 (C) No. 22540293 (2010)

“Appearance of Singularity in Higher-dimensional Spacetime”

高次元時空における時空特異点形成条件の解明

3.64 M yen (~\$37K), PI (2010/4-2014/3)

Grant-in-Aid for Scientific Research Fund of Japan Society for the Promotion of Science,  
 科研費基盤研究 (C) No. 25400277 (2013)

“Non-linear Dynamics in Extended Gravity Theories”

拡張重力理論における非線形ダイナミクス

4.94 M yen (~\$38K), PI (2013/4-2018/3)

Grant-in-Aid for Scientific Research Fund of Japan Society for the Promotion of Science,  
 科研費基盤研究 (B) No. 19H01901 (2019)

“New directions in gravitational-wave data analysis: both in computing algorithms  
 and hardwares including its outreach activitie”

重力波データ抽出方法の開発：新たな解析手法および分散型コンピューティングの導入

13 M yen (~\$110K), PI (2019/4-2024/3)

Grant-in-Aid for Scientific Research Fund of Japan Society for the Promotion of Science,  
 科研費基盤研究 挑戦的研究 (萌芽) No. 19K21621 (2019)

“Establishment of cultural astronomy: Acceleration and integration of arts and  
 sciences on cultural heritage, astronomical phenomena, and mathematical under-  
 standing”

天文文化学の創設：天文と文化遺産を結ぶ文理融合研究の加速

4.8 M yen (~\$45 K), PI (2019/4-2022/3)

Grant-in-Aid for Scientific Research Fund of Japan Society for the Promotion of Science,  
 科研費基盤研究 (C) No. 24K07029 (2024)

“Black-hole formation scenario and test of general relativity using gravitational wave  
 data”

重力波観測データから探るブラックホール形成シナリオへの制限と一般相対性理論の  
 検証

3.5 M yen (~\$25 K), PI (2024/4-2029/3)

## External Links

ORCID	<a href="http://orcid.org/0000-0003-1082-2844">http://orcid.org/0000-0003-1082-2844</a>
ResearcherID	<a href="http://www.researcherid.com/rid/S-6590-2016">http://www.researcherid.com/rid/S-6590-2016</a>
Scopus	<a href="https://www.scopus.com/authid/detail.uri?authorId=7103415263">https://www.scopus.com/authid/detail.uri?authorId=7103415263</a>
Google Scholar	<a href="https://scholar.google.co.jp/citations?user=zxwrmYQAAAAJ">https://scholar.google.co.jp/citations?user=zxwrmYQAAAAJ</a>
SPIRES	<a href="http://inspirehep.net/search?ln=ja&amp;p=find+a+shinkai%2C+h">http://inspirehep.net/search?ln=ja&amp;p=find+a+shinkai%2C+h</a>
arXiv	<a href="https://arxiv.org/find/gr-qc/1/au:+Shinkai_H/0/1/0/all/0/1">https://arxiv.org/find/gr-qc/1/au:+Shinkai_H/0/1/0/all/0/1</a>
CiNii	<a href="http://ci.nii.ac.jp/openurl/query?rft.au=真貝寿明">http://ci.nii.ac.jp/openurl/query?rft.au=真貝寿明</a>
Web of Science	<a href="https://www.webofscience.com/wos/author/record/1654739">https://www.webofscience.com/wos/author/record/1654739</a>