



**Hideaki OHGAKI**

is professor of Institute of Advanced Energy, Kyoto University. He was engaged at National Institute of Advanced Industrial Science and Technology till 2001, and was a visiting researcher at Lawrence Berkeley Laboratory, USA, in 1994-1995 and Duke University, USA, in 1999-2000. His interests are electron accelerators and quantum radiations, such as free electron lasers and laser Compton backscattering gamma-rays. One of the application research of LCS gamma-rays, he has been working on Nuclear Resonance Fluorescence experiment which has been applied to detect hidden special nuclear materials, as well.

On the other hands, he has an interest in new and renewable energy system and implementation toward sustainable development in ASEAN. He is acting as a coordinator of the energy engineering field of AUN/SEED-Net program promoted by JICA since 2014. He has been appointed as a representative of energy and environmental field in JASTIP promoted by JST since 2015.

So far, he published more than 200 international reviewed papers, 15-patents, and 76-invited talks.

Professor

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## Curriculum Vitae

### Education

1979 - 1983 Kyushu University: Faculty of Science

(Bachelor of Arts in Physics, March 1983)

1983 – 1985 Kyushu University: Graduate School of Engineering Science

(Master of Science in Engineering, March 1985)

1985 – 1988 Kyushu University: Graduate School of Engineering Science

(Doctor of Engineering, March 1988 under the supervision of Prof. Masaru Matoba)

Thesis for doctorate: "Characteristics of a Position Sensitive Gas Proportional Counter in the Transition Region of a High Gas Gain".

### Profession

April 1988-March 1989: Researcher, Graduate School of Engineering Sciences, Kyushu University

April 1989-March 1997: Staff Scientist, National Institute of Advanced Industrial Science and Technology (former Electrotechnical Laboratory)

October 1994-October 1995: Guest Researcher, Advanced Light Source, Lawrence Berkeley Laboratory

April 1997-April 2001: Group Leader, National Institute of Advanced Industrial Science and Technology (former Electrotechnical Laboratory)

November 1999-February 2000: Guest Researcher, Duke Free Electron Laser Laboratory, Duke University

April 1999-March 2001: Guest Associate Professor, Faculty of Science, Osaka University

May 2001 - Nov. 2007: Associate Professor, Institute of Advanced Energy, Kyoto University

Aug. 2006 – Sep. 2014: Program Officer of Strategic Research Promotion and International Division, Kyoto University

Oct.1 2008 – Sep.30 2012: Special Appointed Assistant for President, Kyoto University

Dec. 2007 - Present: Professor, Institute of Advanced Energy, Kyoto University

April 2008 – March 2018: Guest Professor, High Energy Accelerator Research Organization

April 2009 – March 2015: Guest Researcher, Japan Atomic Energy Agency

June 2016 – March 2019: Program Officer of Japan Science and Technology Agency

### **Research fields**

1983-1989: Radiation Detection and Nuclear Physics: development of Position Sensitive Gas Detectors for Focal Plane Detector in Light Ion Nuclear Reactions

1989-2001: Accelerator Physics and Quantum Radiation: Development of Small Electron Storage Rings and Generation & Application of Laser Backscattered Gamma-rays

2001-present: Accelerator Physics and Quantum Radiation: Generation & Application Infrared Free Electron Lasers and Laser Backscattered Gamma-rays

2009-present: Development of Nuclear Security and Safety Technology by using Laser Backscattered Gamma-rays and Gamma-ray Detectors

2012-present: Application of MIR-FEL in Energy Materials

2014-2019: Effective Utilization of Coal and Biomass by Solvent Degradation Method (SATREPS/JST)

2015-present: Development of Compact THz radiation source

2016-present: Impact on QOL of Rural Villagers by Renewable Energy Implementation in ASEAN

### **Other international activity**

Asian Committee for Future Accelerator, 2013-present

International Program Committee member of FEL 2003, FEL2013, FEL2015, FEL2017, FEL2018, FEL2019

Scientific Program Committee member of IPAC2010, IPAC2011, IPAC2012, IPAC2013, IPAC2014, FLS2018

International Machine Advisory Committee of TARLA, Turkey, 2010-present

Consultant of COMPETENCE program, UNESCO, 2009-2015

ODA-UNESCO activity in Energy Science Education in Asia region, 2011-2014

Convener of Working Program of Industrial Application of ELI-NP, Romania, 2014-201

Coordinator of AUN/SEED-Net in Energy Engineering Field, 2014 – Present

Group Leader of Energy and Environment Joint Lab of Japan-ASEAN Science and Technology Innovation Platform (JASTIP), 2015-present

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**Publications in recent 3 years (total 225 reviewed international journal paper)**

1. Jordi Cravioto, Hideaki Ohgaki, Hang Seng Che, ChiaKwang Tan, Satoru Kobayashi, Hla Toe, Bun Long, Eth Oudaya, Nasrudin Abd Rahim and Hooman Farzaneh, "The Effects of Rural Electrification on Quality of Life: A Southeast Asian Perspective", *Energies*, vol.13, no.10, 2410 (2020)
2. Sato, K. Yoshida, H. Zen, K. Hachiya, T. Goto, T. Sagawa, H. Ohgaki, "Two-photon selective excitation of phonon-mode in diamond using mid-infrared free-electron laser", *Physics Letters A*, vol.384, no.10, 126223 (2020)
3. Kouichi Miura, Jingchong Yan, Hideaki Ohgaki, Ryuichi Ashida, Kazuhira Ichikawa, "Reduction and Gasification Characteristics of A Unique Iron Ore/carbon Composite Prepared from Robe River and A Coal Tar Vacuum Residue", *ISIJ International*, Vol. 59 (2019), No. 12, pp. 2182-2192
4. Siriwan Krainara, Heishun Zen, Shuya Chatani, Toshiteru Kii, and Hideaki Ohgaki, "Properties of THz coherent undulator radiation generated from a compact accelerator source at Kyoto University", *Review of Scientific Instruments* 90, 103307 (2019); <https://doi.org/10.1063/1.5110342>
5. Norihiro Sei, H. Ogawa, T. Tanaka, Y. Hayakawa, T. Sakai, Y. Sumitomo, Y. Takahashi, K. Hayakawa, K. Nogami, H. Zen and H. Ohgaki, "Research of coherent edge radiation generated by electron beams oscillating free-electron lasers", *Journal of Physics: Conference Series*, 1350 (2019) 012039. doi:10.1088/1742-6596/1350/1/012039
6. Tshewang Lhendup, Hideaki OHGAKI, Pravakar Pradhan, Tandin Wangchuk, "Parametric Study of Heating and Cooling Energy Demand of Residential Buildings in Bhutan", *International Journal of Structural and Civil Engineering Research* Vol. 8, No. 4, November 2019, 314-320.
7. Hooman Farzaneh, Jose A. Puppim de Oliveira, Benjamin McLellan and Hideaki Ohgaki, "Towards a Low Emission Transport System: Evaluating the Public Health and Environmental Benefits", *Energies*, 12, 3747 (2019) doi:10.3390/en12193747
8. K. Torgasin, K. Morita, H. Zen, K. Masuda, M. Bakr, K. Nagasaki, T. Kii, H. Ohgaki, "Study on Anomalous Photoemission of LaB6 at High Temperature", *Physica Scripta*, vol.94 (7), 075701(2019) <https://doi.org/10.1088/1402-4896/ab003f>
9. Mohd Amran Mohd Radzi, Nasrudin Abd. Rahim, Hang Seng Che, Hideaki Ohgaki, Hooman Farzaneh, Wallace Shung Hui Wong, and Lai Chean Hung, "OPTIMAL SOLAR POWERED

SYSTEM FOR LONG HOUSES IN SARAWAK BY USING HOMER TOOL", ASEAN Engineering Journal, vol.9, No.1, 2586-9159 p.1(2019).

10. Heishun Zen, Hideaki Ohgaki, Yoshitaka Taira, Takehito Hayakawa, Toshiyuki Shizuma, Izuru Daito, Jun-ichiro Yamazaki, Toshiteru Kii, Hiroyuki Toyokawa, Masahiro Katoh, "Demonstration of tomographic imaging of isotope distribution by nuclear resonance fluorescence", AIP Advanced, vol. 9 no. 3, 35101 (2019).
11. Watcharakorn Ketren, Heishun Zen, Ryuichi Ashida, Toshiteru Kii and Hideaki Ohgaki, "Investigation on Conversion Pathways in Degradative Solvent Extraction of Rice Straw by Using Liquid Membrane-FTIR Spectroscopy", Energies, 12(3), 528 (2019); <https://doi.org/10.3390/en12030528>
12. H. Zen, T. Hayakawa, E. Salehi, M. Fujimoto, T. Shizuma, J.K. Koga, T. Kii, M. Katoh, H. Ohgaki, "Generation of 1-MeV Quasi-Monochromatic Gamma-Rays for Precise Measurement of Delbrück Scattering by Laser Compton Scattering", Journal of Physics: Conference Series, vol. 1067, 92003 (2018).
13. S. Krainara, S. Chatani, H. Zen, T. Kii, H. Ohgaki, "Study of the Saturation of Radiation Energy Caused by the Space Charge Effect in a Compact THz Coherent Radiation Source", Journal of Physics: Conference Series, vol. 1067, 32022 (2018).
14. M. Bakr, H. Ohgaki, "Influence of the Cathode Material Properties in Reducing the Back-Bombardment Effect in Thermionic RF Gun", IEEE Transactions on Electron Devices, vol.65, no.11, 5053-5061 (2018). DOI:10.1109/TED.2018.2867932
15. S.K. Maurya, T. Nakajima, K. Mizobata, H. Zen, T. Kii, H. Ohgaki, "Real-time Observation of Structural Change in Semi-crystalline Polymer Films through Mid-IR Transmission Spectroscopy: Determination of Instantaneous Film Temperature during Recrystallization", Optics Express, vol.26, 21615-21625 (2018). doi.org/10.1364/OE.26.021615
16. F. Shishikura, H. Zen, K. Hayakawa, Y. Komatsuzaki, Y. Hayakawa, T. Sakai, T. Kii, H. Ohgaki, "Mid-Infrared Free-Electron Laser-Evoked Discharge of Crayfish Compound Eyes", bioRxiv, vol. 77, no.3, 159-164 (2018). doi.org/10.4264/numa.77.3\_159
17. Sikharin Suphakul, Heishun Zen, Toshiteru Kii and Hideaki Ohgaki, "Investigation of Bunch Compressor and Compressed Electron Beam Characteristics by Coherent Transition Radiation", Particles, vol.2, no.1, 32-43 (2018).
18. Y. Uozumi, Y. Yamaguchi, M. Fujii, H. Zen, T. Kii, H. Ohgaki, Z. Tsamalaidze, P. Evtoukhovitch, "Responses of PWO, LaBr<sub>3</sub>:Ce, and LYSO:Ce Scintillators to Single-Electron Hits of 5-40 MeV at KU-FEL", Nuclear Instruments and Methods in Physics Research A, vol.911, 138-141 (2018). doi.org/10.1016/j.nima.2018.10.040

19. N. Sei, H. Zen, H. Ohgaki, "Measurement of bunch length evolution in electron beam macropulse of S-band linac using coherent edge radiation", *Physics Letters A*, vol. 383, No.5 389-395 (2018). doi.org/10.1016/j.physleta.2018.11.010
20. S. Krainara, S. Chatani, H. Zen, T. Kii, H. Ohgaki, "Manipulation of Laser Distribution to Mitigate the Space-Charge Effect for Improving the Performance of a THz Coherent Undulator Radiation Source", *Particles*, Vol.1, No.1, 238-252 (2018). doi.org/10.3390/particles1010018
21. Nikolaos Iliopoulos, Hooman Farzaneh, Hideaki Ohgaki, "Tokyo's Low-Emission Development Strategies Underlying the Promotion of Energy Efficiency in Public and Private Buildings", *Devising a Clean Energy Strategy for Asian Cities*, Springer, ISBN 978-981-13-0782-9, 205-222 (2018). doi.org/10.1007/978-981-13-0782-9\_10
22. Nattapan Thanomsat, Boonyang Plangklang and Hideaki Ohgaki, "Analysis of Ferroresonance Phenomenon in 22 kV Distribution System with a Photovoltaic Source by PSCAD/EMTDC", *Energies* 2018, 11(7), 1742 (2018); <https://doi.org/10.3390/en11071742>
23. Pimnapat Bhumkittipich and Hideaki Ohgaki, "Development Strategy for Sustainable Solar Home System in the Akha Upland Community of Thailand", *Energies*, 11(6), 1509 (2018). <https://doi.org/10.3390/en11061509>
24. Jadsadajerm, S., Muangthong-on, T., Wannapeera, J., Ohgaki, H., Miura, K., Worasuwanarak, N, "Degradative solvent extraction of biomass using petroleum based solvents", *Bioresource Technology*, 260, pp.169-176 (2018).
25. Ketren Watcharakorn, Wannapeera Janewit, Heishun Zen, Ryuichi Ashida, Toshiteru Kii, Kouichi Miura and Hideaki Ohgaki, "The Mechanism Study of Degradative Solvent Extraction of Biomass by Liquid Membrane-Fourier Transform Infrared Spectroscopy", *Int. Journal of Physical and Mathematical Science*, vol.12, No.1, pp.9-13 (2018).