17 April 2026

Michihiro Ohta

Leader, Thermal Energy Device Research Team,
Global Zero Emission Research Center,
& Leader, Thermal Management Project
& Member, Collaborative Engine Research Laboratory for Next Generation Vehicles
National Institute of Advanced Industrial Science and Technology (AIST)



PhD, Kyushu Institute of Technology (March 2002)
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Employment

National Institute of Advanced Industrial Science and Technology (AIST)

- April 2021 – present | Leader, Team
- January 2018 – March 2021 | Senior Researcher
- January 2018 – December 2018 | Planning Officer
- March 2013 – December 2017 | Senior Researcher
- April 2006 – February 2013 | Researcher

Mottainai Energy Co., Ltd.

- June 2016 – May 2020 | Technical Adviser & Co-funder

Argonne National Laboratory

- August 2011 – August 2012 | Visiting Researcher (Host: Prof. Mercouri G. Kanatzidis)

Muroran Institute of Technology

- April 2003 – March 2006 | Postdoctoral Fellow (Supervisor: Prof. Shinji Hirai)

National Institute for Materials Science (NIMS)

- April 2002 – March 2003 | Postdoctoral Fellow (Supervisor: Dr. Toshiyuki Nishimura)

Professional Service

The Thermoelectrics Society of Japan (TSJ)

- October 2022 – Present | Executive Board Member, Responsible for General Affairs
- October 2018 – September 2022 | Executive Board Member, Editor-in-chief, Journal of the Thermoelectrics Society of Japan
- 2024 | Chair of the Local Organizing Committee, the 21st Annual Meeting (TSJ2024)

The International Conference on Thermoelectrics

- 2025 | Scientific Program, Organizing Committee, ICT/ACT2025
- 2013 | Program Management, Organizing Committee, ICT2013

Awards

- 2017 | ICT Best Poster Award
- 2017 | Extraordinary contributions in organizing ACT2017, Asian Association of Thermoelectrics
- 2017 | AIST Best Paper Award
- 2016 | Young Investigator Award, The Thermoelectrics Society of Japan (TSJ)

Selected Publications

- Bridging heat-flow and guarded-heater methods for thermoelectric module efficiency evaluation, Amagai, Y.*, Okawa, K., Funahashi, R., Yamamoto, A., Ohta, M.*, *iScience*, 2026, **29**, 115271:1–9.
- Simultaneously enhanced thermoelectric and mechanical properties in $Mg_3(Sb,Bi)_2$ by MXene compositing for automotive waste heat recovery, Sauerschnig, P., Naruke, M., Imasato, K., Yamamoto, A., Ishida, T., Ohta, M.*, *Chem. Mater.*, 2025, **37**, 7240–7250.
- Improving the long-term stability of PbTe-based thermoelectric modules: from nanostructures to packaged module architecture", Sauerschnig, P.; Saitou, N.; Koshino, M.; Ishida, T.; Yamamoto, A.; Ohta, M.*, *ACS Appl. Mater. Interfaces*, 2024, **16**, 46421–46432.
- Excessively doped PbTe with Ge-induced nanostructures enables high-efficiency thermoelectric modules, Jood, P., Ohta, M.*, Yamamoto, A., Kanatzidis, M.G., *Joule*, 2018, **2**, 1339–1355.
- Power generation from nanostructured PbTe-based thermoelectrics: comprehensive development from materials to modules, Hu, X.K., Jood, P., Ohta, M.*, Kunii, M., Nagase, K., Nishiate, H., Kanatzidis, M,G., Yamamoto, A, *Energy Environ. Sci.*, 2016, **9**, 517–529.

Statement

By bridging materials science and module engineering, we demonstrated a conversion efficiency exceeding 11% in 2016. This achievement was a turning point in thermoelectric research. It has shown that module fabrication is as important as materials development. Currently, I lead national R&D projects in Japan to advance thermoelectric applications, including automotive thermoelectric waste heat recovery systems and radioisotope thermoelectric generators.

Within the International Thermoelectric Society (ITS), I have actively contributed to the community by serving on the organizing committees of ICT2013 in Kobe and ICT/ACT2025 in Sendai. I have also received an award from the Asian Association of Thermoelectrics (AAT) in recognition of my contributions to the organization of ACT2017. In addition, I have served the thermoelectric community through leadership roles within the Thermoelectric Society of Japan (TSJ), including serving as an Executive Board Member responsible for general affairs and as Editor-in-Chief. Through these activities, I have contributed to strengthening the thermoelectric community and to the dissemination of high-quality scientific research.

My vision for ITS is to accelerate the translation of thermoelectric research from materials to modules, systems, and real-world applications through stronger engagement with industry and public stakeholders. Drawing on my experience in research, application-oriented development, and academic governance, I aim to contribute to enhancing both the scientific excellence and societal impact of ITS.