Curriculum Vitae

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Toshihiko Nakata has been a fulltime professor at the Graduate School of Engineering, Tohoku University since April 2006. He originally began work at Tohoku University in September 1993 as an associate professor. He was a Fulbright Scholar at Lawrence Livermore National Laboratory, USA, between 1997 and1998 and was also a senior researcher at the Central Research Institute of Electric Power Industry, Japan, between 1985 and1993. He has received the "Best Paper Award" from the American Society of Mechanical Engineers in 2000; the "Academic Award" from the Combustion Society of Japan in 1993; and the "President's Award" from the Central Research Institute of Electric Power Industry, Japan, in 1991. He also serves on the board of the Reconstruction Promotion Committee of Japan by appointment of the Prime Minister.

Education

B. Mechanical Engineering, Tohoku University, 1983
M. Mechanical Engineering, Tohoku University, 1985
Ph. D., Mechanical Engineering, Tohoku University, 1993

Professional Experience

2006-present
Full Professor
Graduate School of Engineering
Tohoku University, Sendai, Japan

1993- 2006
Associate Professor
Graduate School of Engineering
Tohoku University, Sendai, Japan

1997- 1998
Fulbright Scholar
Lawrence Livermore National Laboratory, USA

1985- 1993
Senior Researcher
Central Research Institute of Electric Power Industry, Tokyo, Japan

Honors and awards

Best Paper Award, Japan Institute of Energy, 2017.
Award for contribution to technology committee, Society of Automotive Engineers of Japan, 2015
Best Paper Award, Japan Institute of Energy, 2005.
Best Paper Award, American Society of Mechanical Engineers, 2000.
Academic Award, Combustion Society of Japan, 1993
President's Award, Central Research Institute of Electric Power Industry, Japan, 1991
Awarded Yamaoka Fellowship 1983-1985
Awarded Schlumberger Fellowship 1982-1983

Teaching Experience

Innovation Management
Project Management
Energy-economic modeling
Energy systems and society
Thermal Engineering
Gas turbine combustion
Heat transfer
FORTRAN programming
Design and drawings

Professional Activities

Membership in:
International Association for Energy Economics
Japan Society of Energy and Resources
Japan Institute of Energy
Japan Society of Mechanical Engineers

Previous Experience and ongoing projects.

Integrated Design for Sustainable Energy Systems:

Waste management, regional renewable/biomass energy systems. Serve as a member of advisory board; Renewable energy efficiency committee at Miyagi prefecture, Environmental management committee at Sendai city, Biomass strategy planning committee at Yokote city, Smart community designing committee at Hirosaki city, Mogami city, and Miyako city.

Energy - economic modeling and analysis:

Managed the development of a large-scale energy model of Japan and the US energy system. Developed and applied a software system for building and running large energy economics models. Conducted economic analysis of the need for renewable facilities in Japan under constraint of CO_2 emissions. Conducted analysis of the future costs and availability of coal for electric generation in Asia.

Fossil fuel combustion technology for power generation:

Managed the development of a low NOx gas turbine combustor for use in coal gasification combined cycle systems. Developed a software system for designing gas turbine combustors. Conducted kinetic analysis of the NOx formation mechanism in

combustion reactions. Conducted experimental analysis of the low NOx gas turbine combustor for use in coal gasification combined system.

Industrial ecology:

Conducted research on industrial ecology to seek integrated solutions between technology and environment. Conducted design analyses for harmonize industrial development with global environment. I am engaged in the conception and assessment of improving energy and manufacturing technologies to meet environmental needs, and analyzing and addressing barriers to the implementation of new technologies and policies.

List of Publication by Scopus

Cuberos Balda, M., Furubayashi, T., Nakata, T.
A novel approach for analyzing the food-energy nexus through on-farm energy generation
(2017) Clean Technologies and Environmental Policy, 19 (4), pp. 1003-1019.
https://www.scopus.com/inward/record.uri?eid=2-s2.0-84992179537&doi=10.1007%2fs10098-016-1295-8&partnerID=40&md5=70f02a5a502079ae65128b56870af4ed

DOI: 10.1007/s10098-016-1295-8

Usui, T., Furubayashi, T., Nakata, T.
Induced technological change and the timing of public R&D investment in the Japanese electricity sector considering a two-factor learning curve
(2017) Clean Technologies and Environmental Policy, pp. 1-14. Article in Press.
https://www.scopus.com/inward/record.uri?eid=2-s2.0-85009829101&doi=10.1007%2fs10098-017-1333-1&partnerID=40&md5=2c5868210c4205ae08d54b50bc7f7133

DOI: 10.1007/s10098-017-1333-1

Nakata, T.
Steam turbine life cycle cost evaluations and comparison with other power systems
(2016) Advances in Steam Turbines for Modern Power Plants, pp. 93-106.
https://www.scopus.com/inward/record.uri?eid=2-s2.0-85009673258&doi=10.1016%2fB978-0-08-100314-5.00005-1&partnerID=40&md5=fc1943c80685077058a16fc2672bee02

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Flores, H.F.V., Furubayashi, T., Nakata, T.
Decentralised electricity generation system based on local renewable energy sources in the Honduran rural residential sector
(2016) Clean Technologies and Environmental Policy, 18 (3), pp. 883-900. 2 times cited.
https://www.scopus.com/inward/record.uri?eid=2-s2.0-84960082017&doi=10.1007%2fs10098-015-1067-x&partnerID=40&md5=4fe2b9e59dd5a4962ed0f8c34ce621ae

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(2016) Renewable Energy, 86, pp. 1247-1255. 3 times cited.
https://www.scopus.com/inward/record.uri?eid=2-s2.0-84943651885&doi=10.1016%2fj.renene.2015.09.052&partnerID=40&md5=31b335c7cd77368df388d7ec4b37009e

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Baldvinsson, I., Nakata, T.
A feasibility and performance assessment of a low temperature district heating system - A North Japanese case study
(2016) Energy, 95, pp. 155-174. 3 times cited.
https://www.scopus.com/inward/record.uri?eid=2-s2.0-84960384406&doi=10.1016%2fj.energy.2015.11.057&partnerID=40&md5=168ef3685096565e7560bd9c12174842

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Furubayashi, T., Nakata, T.
Integrated assessment of biomass energy systems considering effective utilization of resources
(2016) Nihon Enerugi Gakkaishi/Journal of the Japan Institute of Energy, 95 (1), pp. 111-122.

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Furubayashi, T., Nakata, T.
Design of woody biomass supply chain for co-firing considering characteristics of bio-fuel
(2015) ICOPE 2015 - International Conference on Power Engineering, .
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Villatoro, H., Furubayashi, T., Nakata, T.
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(2015) ICOPE 2015 - International Conference on Power Engineering, .
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Balda, M.C., Furubayashi, T., Nakata, T.
Analysis of food production and energy nexus through a model proposed for multifunctional farms considering land use efficiency
(2015) ICOPE 2015 - International Conference on Power Engineering, .
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González Palencia, J.C., Furubayashi, T., Nakata, T.
Techno-economic assessment of lightweight and zero emission vehicles deployment in the passenger car fleet of developing countries
(2014) Applied Energy, 123, pp. 129-142. 10 times cited.
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Baldvinsson, I., Nakata, T.
A comparative exergy and exergoeconomic analysis of a residential heat supply system paradigm of Japan and local source based district heating system using SPECO (specific exergy cost) method
(2014) Energy, 74 (C), pp. 537-554. 9 times cited.
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Development of an energy-economic model with endogenous technological progress and feasibility study of CCS systems
(2014) Heat Transfer - Asian Research, 43 (4), pp. 332-351.
https://www.scopus.com/inward/record.uri?eid=2-s2.0-84897505342&doi=10.1002%2fhtj.21078&partnerID=40&md5=ac20db4157e51d5c828dc9ae6a284769

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Yoda, K., Furubayashi, T., Nakata, T.
Design of automotive bioethanol supply chain using mixed integer programming
(2013) Nihon Enerugi Gakkaishi/Journal of the Japan Institute of Energy, 92 (11), pp. 1173-1186. 2 times cited.
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Economic ripple effects of bioethanol production in asean countries: Application of inter-regional input-output analysis
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Assessment of energy utilization in Iran's industrial sector using energy and exergy analysis method
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Design of decentralized energy systems for rural electrification in developing countries considering regional disparity
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The analysis on performance of microalgae-based biofuel production system considering regional climate condition and transportation
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Economic ripple effects of policy coordination on bio-ethanol production and trade in east Asia: Application of international inter-regional input-output analysis
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Optimization of international bioethanol supply in East Asia
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Nakata, T., Silva, D., Rodionov, M.
Application of energy system models for designing a low-carbon society
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Economic analysis on small-scale forest biomass gasification considering geographical resources distribution and technical characteristics
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