Asst. Prof. ÖZGÜR AYDIN

Personal Information

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International Researcher IDs
ORCID: 0000-0002-8814-6025
Publons / Web Of Science ResearcherID: AAV-4627-2020
ScopusID: 56473388200
Yoksis Researcher ID: 297974

Education Information

Post Doctorate, Kyushu University, School of Engineering , Mechanical Engineering , Japan 2017 - 2019
Doctorate, Kyushu University, Graduate School of Engineering, Hydrogen Energy Systems, Japan 2014 - 2017
Postgraduate, Universitaet Ulm, Faculty of Natural Sciences, Energy Science and Technology, Germany 2011 - 2013
Undergraduate, Selcuk University, Faculty Of Engıneerıng-Archıtecture, Mechanical Engineering , Turkey 2005 - 2011

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Elaboration of spatial current and temperature variations in microtubular solid oxide fuel cells by experimental and numerical techniques, Kyushu University, Graduate School of Engineering, Hydrogen Energy Systems, 2017

Research Areas

Energy, Energy storage technologies, Hydrogen Technologies and Fuel Cells , Thermodynamics, Heat and Mass Transfer, Fuels and Combustion, Computational fluid dynamics

Academic Titles / Tasks

Assistant Professor, Karadeniz Technical University, Mühendislik Fakültesi, Makine Mühendisliği, 2021 - Continues
Assistant Professor, Abdullah Gul University, Mühendislik Fakültesi, Makine Mühendisliği, 2019 - 2021

Academic and Administrative Experience

Uyum Komisyonu Üyesi, Karadeniz Technical University, Mühendislik Fakültesi, Makine Mühendisliği, 2021 - Continues

Courses

Doctorate

Heat Conduction, Doctorate, 2021 - 2022

Undergraduate

Engineering Thermodynamics - II, Undergraduate, 2021 - 2022

Heat Transfer, Undergraduate, 2021 - 2022

Fluid Mechanics, Undergraduate, 2021 - 2022

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Comprehensive numerical investigations on direct ammonia-fed planar solid oxide fuel cell**
AYDIN Ö.
Fuel, vol.378, 2024 (SCI-Expanded)

II. **Thermal stresses in SOFC stacks: the role of mismatch among thermal conductivity of adjacent components**
AYDIN Ö., Matsumoto G., Shiratori Y.
TURKISH JOURNAL OF CHEMISTRY, vol.45, no.3, pp.719-736, 2021 (SCI-Expanded)

III. **Performance and Durability of One-Cell Module of Biogas-Utilizing SOFC Equipped with Graded Indirect Internal Reformer**
AYDIN Ö., Matsumoto G., Kubota A., Dang Long Tran D. L. T., Sakamoto M., Shiratori Y.
JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.167, no.6, 2020 (SCI-Expanded)

IV. **Mass transport limitation in inlet periphery of fuel cells: Studied on a planar Solid Oxide Fuel Cell**
AYDIN Ö., Ochiai T., Nakajima H., Kitahara T., Ito K., Ogura Y., Shimano J.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.36, pp.17420-17430, 2018 (SCI-Expanded)

V. **Designing graded catalytic domain to homogenize temperature distribution while dry reforming of CH4**
AYDIN Ö., Kubota A., Dang Long Tran D. L. T., Sakamoto M., Shiratori Y.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.36, pp.17431-17443, 2018 (SCI-Expanded)

VI. **Concentration Gradient of Reactants Extending from Reaction Sites Inward Inlet Periphery of Fuel Cells**
AYDIN Ö., Nakajima H.
JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.165, no.5, 2018 (SCI-Expanded)

VII. **Reliability of the numerical SOFC models for estimating the spatial current and temperature variations**
AYDIN Ö., Nakajima H., Kitahara T.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.41, no.34, pp.15311-15324, 2016 (SCI-Expanded)

VIII. **Processes Involving in the Temperature Variations in Solid Oxide Fuel Cells In-Situ Analyzed through Electrode-Segmentation Method**
AYDIN Ö., Nakajima H., Kitahara T.
JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.163, no.3, 2016 (SCI-Expanded)

IX. **Current and temperature distributions in-situ acquired by electrode-segmentation along a microtubular solid oxide fuel cell operating with syngas**
AYDIN Ö., Nakajima H., Kitahara T.
JOURNAL OF POWER SOURCES, vol.293, pp.1053-1061, 2015 (SCI-Expanded)

X. **Challenges Associated with Measuring the Intrinsic Electrical Conductivity of Carbon Paper Diffusion Media**
AYDIN Ö., Zedda M., Zamel N.
FUEL CELLS, vol.15, no.3, pp.537-544, 2015 (SCI-Expanded)

XI. **In-situ diagnosis and assessment of longitudinal current variation by electrode-segmentation method in anode-supported microtubular solid oxide fuel cells**
AYDIN Ö., Koshiyama T., Nakajima H., Kitahara T.
JOURNAL OF POWER SOURCES, vol.279, pp.218-223, 2015 (SCI-Expanded)

Papers Published in Refereed Scientific Meetings

I. **Relationship Among Thermal Stresses and Thermal Conductivity of Stack Materials in SOFCs**
AYDIN Ö.
World Online Conference on Sustainable Technologies (WOCST), Pisa, Italy, 17 - 19 March 2021

II. **Indirect internal reforming SOFC accommodating graded-catalytic domain fabricated by paper-structured catalyst**
AYDIN Ö., Matsumoto G., Kubota A., Tran D., Sakamoto M., Shiratori Y.
16th International Symposium on Solid Oxide Fuel Cells, SOFC 2019, Kyoto, Japan, 8 - 13 September 2019, vol.91, pp.1631-1640

III. **Development of a Compact SOFC Module with Paper-structured Catalyst**
Matsumoto G., AYDIN Ö., Sakamoto M., Sasaki K., Shiratori Y.
The 27th SOFC Symposium in Japan, Tokyo, Japan, 13 - 14 December 2018

IV. **Onset of Mass Transport Limitation in Inlet Periphery of Fuel Cells**
AYDIN Ö., Nakajima H., Kitahara T., Ito K., Ogura Y., Shimano J.
HYPOTHESIS XIII (Hydrogen Power Theoretical and Engineering Solutions International Symposium), Singapore, Singapore, 24 - 27 July 2018

V. **Functionally-Graded Catalytic Domain for Homogenizing Temperature Distribution Along a Plate-Type Dry CH4 Reformer**
AYDIN Ö., Kubota A., Tran D. L., Sakamoto M., Shiratori Y.
HYPOTHESIS XIII (Hydrogen Power Theoretical and Engineering Solutions International Symposium), Singapore, Singapore, 24 - 27 July 2018

VI. **Development of Plate-type Reformer for Downsizing and Power Enhancement of SOFC**
Kubota A., Tran D. L., AYDIN Ö., Sakamoto M., Sasaki K., Shiratori Y.
The 85th Electrochemical Society of Japan (ECSJ) Spring Meeting, Tokyo, Japan, 9 - 11 March 2018

VII. **Concentration Gradient of Reactants in Fuel Cells Extending from Reaction Sites Inward the Inlet Periphery**
AYDIN Ö., Nakajima H., Kitahara T.
European Fuel Cells Conference Exhibition (EFC17), Naples, Italy, 12 - 15 December 2017

VIII. **Reliability of Numerical SOFC Tools for Computing Spatial Current and Temperature Variations**
AYDIN Ö., Nakajima H., Kitahara T.
2nd International Hydrogen Technologies Congress, Adana, Turkey, 15 - 18 March 2017

IX. **In Situ Measured Spatial Temperature Variations for Improving Reliability of Numerical SOFC Tools**
AYDIN Ö., Nakajima H., Kitahara T.
15th International Symposium on Solid Oxide Fuel Cells (SOFC), Florida, United States Of America, 23 - 28 July 2017, vol.78, pp.2191-2201

X. **Contributions to the Spatial Temperature Variations Emerging in SOFCs Elucidated via Combining Experimental and Numerical Techniques**
AYDIN Ö., Nakajima H., Kitahara T.
2016 Asian SOFC Symposium, Tokyo, Japan, 4 - 07 September 2016

XI. **Accuracy of the Numerically Computed Spatial Current and Temperature Variations in SOFCs**

AYDIN Ö., Nakajima H., Kitahara T.
12th European SOFC SOE Forum 2016, Lucerne, Switzerland, 5 - 08 July 2016

XII. **Influence of convective heat transfer by air flow on local current/temperatures along microtubular solid oxide fuel cells in-situ identified by electrode-segmentation method for Co- and counter-flow configurations**
Aydin Ö., Nakajima H., Kitahara T.
14th International Symposium on Solid Oxide Fuel Cells, SOFC 2015; held as part of the Electrochemical Society, ECS Conference on Electrochemical Energy Conversion and Storage, Glasgow, United Kingdom, 26 - 31 July 2015, vol.68, pp.2141-2150

XIII. **Experimental Evaluation of Internal Hydrocarbon Reforming Reaction in Microtubular SOFCs by Segmentation Method**
AYDIN Ö., Koshiyama T., Nakajima H., Kitahara T.
The 55th Battery Symposium in Japan, Kyoto, Japan, 19 - 21 November 2014

XIV. **Comprehensive understanding of electrical conductivity measurements of gas diffusion media of PEM fuel cells**
Aydin Ö., Zedda M., Zamel N., Groos U., Hebling C.
20th World Hydrogen Energy Conference, WHEC 2014, Gwangju, South Korea, 15 - 20 June 2014, vol.1, pp.474-478

Supported Projects

AYDIN Ö., CORA Ö. N., VAROL T., ÇUHADAROĞLU B., BALİ T., Project Supported by Higher Education Institutions, Yakıt Pili Test Sistemi Kurulumu, 2021 - 2023
Aydın Ö., Shiratori Y., Project Supported by Public Organizations in Other Countries, STUDY ON HEAT RECOVERY PROCESS WITHIN ANODE FOR DOWNSIZING FUEL CELL MODULE, 2017 - 2020
Aydın Ö., Kitahara T., Project Supported by Public Organizations in Other Countries, SELF-STANDING SOLID OXIDE FUEL CELL INVOLVING A NOVEL REFORMING STRUCTURE FOR HYDROCARBON FUELS, 2017 - 2019

Metrics

Publication: 25
Citation (WoS): 89
Citation (Scopus): 94
H-Index (WoS): 6
H-Index (Scopus): 6

Congress and Symposium Activities

World Online Community for Sustainable Technologies, Attendee, Florence, Italy, 2022

Scholarships

Fulbright Postdoctoral Program, Fulbright Program, 2022 - 2023
JSPS Postdoctoral Fellowship for Overseas Researchers, Official Institutions of Foreign Countries, 2017 - 2019
MEXT Scholarship (Monbukagakusho), Official Institutions of Foreign Countries, 2015 - 2017
TEV-DAAD Müşterek Almanya Yüksek Lisans Bursu , Foundation, 2011 - 2013

Non Academic Experience

Company, Dal Teknik Makina A.Ş., AR&GE Merkezi, AR&GE Direktörü
DAL TEKNİK MAKİNA TİCARET VE SANAYİ ANONİM ŞİRKETİ, AR&GE YÖNETİCİSİ
Fraunhofer ISE (Araştırma Enstitüsü-Almanya), Research Assistant
Fraunhofer IWM (Araştırma Enstitüsü-Almanya), Research Assistant