

## Personal Information

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Bölümü Ortahisar/Trabzon

## 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 Engineering-Architecture, 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

Engineering Thermodynamics - II, Undergraduate, 2021 - 2022

Heat Transfer, Undergraduate, 2021 - 2022

Fluid Mechanics, Undergraduate, 2021 - 2022

Heat Conduction, Doctorate, 2021 - 2022

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **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)
- II. **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)
- III. **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)
- IV. **Designing graded catalytic domain to homogenize temperature distribution while dry reforming of CH<sub>4</sub>**  
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)
- V. **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)
- VI. **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)
- VII. **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)
- VIII. **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)
- IX. **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)
- X. **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)

**Refereed Congress / Symposium Publications in Proceedings**

- 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 CH<sub>4</sub> 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., BALI T., Project Supported by Higher Education Institutions, Yakıt Pili Test Sistemi Kurulumu, 2021 - 2023

Aydin 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

Aydin 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: 24

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

DAL TEKNİK MAKİNA TİCARET VE SANAYİ ANONİM ŞİRKETİ

Fraunhofer ISE (Araştırma Enstitüsü-Almanya)

