

Asst. Prof. AHMET ALPEREN GÜNAY

Personal Information

Email: gunaya@metu.edu.tr

Web: <https://avesis.metu.edu.tr/gunaya>

International Researcher IDs

ScholarID: yCWm994AAAAJ

ORCID: 0000-0002-2013-9101

Publons / Web Of Science ResearcherID: AAZ-3867-2021

ScopusID: 57196353874

Yoksis Researcher ID: 332298

Education Information

Doctorate, University of Illinois at Urbana-Champaign, Faculty of Engineering, Mechanical Science and Engineering, United States Of America 2016 - 2019

Postgraduate, University of Illinois at Urbana-Champaign, Faculty of Engineering, Mechanical Science and Engineering, United States Of America 2014 - 2016

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, Turkey 2009 - 2014

Foreign Languages

English, C2 Mastery

German, C1 Advanced

Turkish, C2 Mastery

Japanese, B1 Intermediate

Dissertations

Doctorate, Droplet Evaporation Dynamics on Surfaces, University of Illinois at Urbana-Champaign, Faculty of Engineering, Mechanical Science and Engineering, 2019

Postgraduate, MODELING, FABRICATION AND OPTIMIZATION OF OPTICALLY TRANSPARENT – THERMALLY INSULATING SILICA AEROGELS FOR SOLAR THERMAL APPLICATIONS, University of Illinois at Urbana-Champaign, Faculty of Engineering, Mechanical Science and Engineering, 2016

Research Areas

Energy, Renewable Energy Systems, Energy storage technologies, Solar energy, Advanced Energy Technologies, Heat and Mass Transfer, Thermal Systems, Thermal machines, Semiconductor and Superconductor Materials, Optical Properties, Physical Properties, Thermal Treatment, Material Characterization, Nanomaterials, Thermal Properties

Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Mechanical Engineering, 2021 - Continues

Researcher, Tokyo University, FACULTY OF ENGINEERING, MECHANICAL ENGINEERING, 2019 - 2021

Research Assistant, University of Illinois at Urbana-Champaign, Faculty of Engineering, Mechanical Science and Engineering, 2014 - 2019

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Photonic design for color compatible radiative cooling accelerated by materials informatics**
Guo J., Ju S., Lee Y., GÜNAY A. A., Shiomi J.
International Journal of Heat and Mass Transfer, vol.195, 2022 (SCI-Expanded)
- II. **Enabling Renewable Energy Technologies in Harsh Climates with Ultra-Efficient Electro-Thermal Desnowing, Defrosting, and Deicing**
Li L., Khodakarami S., Yan X., Fazle Rabbi K., GÜNAY A. A., Stillwell A., Miljkovic N.
Advanced Functional Materials, vol.32, 2022 (SCI-Expanded)
- III. **Metal-organic framework coated porous structures for enhanced thermoelectric performance**
Günay A. A., Harish S., Fuchi M., Kinefuchi I., Lee Y., Shiomi J.
Energy Conversion and Management, vol.255, 2022 (SCI-Expanded)
- IV. **ANALYSIS AND OPTIMIZATION OF ACTIVATED CARBON COATED HEAT SINKS**
GÜNAY A. A.
ISI BILIMI VE TEKNIGI DERGISI-JOURNAL OF THERMAL SCIENCE AND TECHNOLOGY, vol.42, no.1, pp.65-74, 2022 (SCI-Expanded)
- V. **Droplet evaporation dynamics on microstructured biphilic, hydrophobic, and smooth surfaces**
Gunay A. A., Kim M., Yan X., Miljkovic N., Sett S.
EXPERIMENTS IN FLUIDS, vol.62, no.7, 2021 (SCI-Expanded)
- VI. **Modular Heat Sinks for Enhanced Thermal Management of Electronics**
Hoque M. J., Gunay A. A., Stillwell A., Gurumukhi Y., Pilawa-Podgurski R. C. N., Miljkovic N.
JOURNAL OF ELECTRONIC PACKAGING, vol.143, no.2, 2021 (SCI-Expanded)
- VII. **Gas-Phase Temperature Mapping of Evaporating Microdroplets**
Mousa M. H., Gunay A. A., Orejon D., Khodakarami S., Nawaz K., Miljkovic N.
ACS APPLIED MATERIALS & INTERFACES, vol.13, no.13, pp.15925-15938, 2021 (SCI-Expanded)
- VIII. **Droplet Evaporation Dynamics of Low Surface Tension Fluids Using the Steady Method**
Gunay A. A., Gnadt M., Sett S., Vahabi H., Kota A. K., Miljkovic N.
LANGMUIR, vol.36, no.46, pp.13860-13871, 2020 (SCI-Expanded)
- IX. **Cloaking Dynamics on Lubricant-Infused Surfaces**
Gunay A. A., Sett S., Ge Q., Zhang T., Miljkovic N.
ADVANCED MATERIALS INTERFACES, vol.7, no.19, 2020 (SCI-Expanded)
- X. **Transient pulse condensation**
Sett S., Sokalski P., Mehta M., Rabbi K. F., Gunay A. A., Miljkovic N.
APPLIED PHYSICS LETTERS, vol.117, no.9, 2020 (SCI-Expanded)
- XI. **Condensation frosting on meter-scale superhydrophobic and superhydrophilic heat exchangers**
Boyina K. S., Mahvi A. J., Chavan S., Park D., Kumar K., Lira M., Yu Y., Gunay A. A., Wang X., Miljkovic N.
INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER, vol.145, 2019 (SCI-Expanded)
- XII. **Optically Transparent Thermally Insulating Silica Aerogels for Solar Thermal Insulation**
Gunay A. A., Kim H., Nagarajan N., Lopez M., Kantharaj R., Alsaati A., Marconnet A., Lenert A., Miljkovic N.
ACS APPLIED MATERIALS & INTERFACES, vol.10, no.15, pp.12603-12611, 2018 (SCI-Expanded)
- XIII. **Steady Method for the Analysis of Evaporation Dynamics**
Gunay A. A., Sett S., Oh J., Miljkovic N.

Articles Published in Other Journals

I. Droplet evaporation on functional surfaces

GÜNAY A. A., Gnadt M., Sett S., Oh J., Miljkovic N.

Proceedings of the 16th International Heat Transfer Conference, IHTC 2018, pp.1285-1291, 2018 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

I. Investigation of the natural cooling mechanism on the atmospheric side of thermoelectric devices using the adsorption and desorption of water on metal-organic frameworks

Sugamoto Y., Kito S., Günay A. A., Harish S., Lee Y., Shiomi J.

Annual Meeting of the Thermoelectrics Society of Japan, TSJ2021, Tokyo, Japan, 23 - 25 August 2021, pp.1-2

II. Visualization of Interfacial Phenomena Enhancing Phase Change Heat Transfer

Oh J., Günay A. A., Sett S.

Korean Society of Mechanical Engineers Spring and Autumn Conference, Seoul, South Korea, 19 August 2021, pp.50-51

III. Effect of Stress-Strain Profile on Bulk Thermal Conductivity

Günay A. A., Shiomi J.

American Physical Society, APS March Meeting 2021, Colorado, United States Of America, 15 March 2021

IV. Cloaking on Lubricant Infused Surfaces

Günay A. A.

ICARSES2020, Tamil Nadu, India, 05 December 2020

V. Metal-Organic Framework Coated Thermal Fins for Improved Thermal Efficiency of Thermoelectric Device

Günay A. A., Fuchi M., Lee Y., Shiomi J.

Annual Meeting of the Thermoelectrics Society of Japan, TSJ2020, Kitakyushu, Japan, 28 - 30 September 2020

VI. Gas Phase Temperature Mapping of Evaporating Water Microdroplets

Mousa M., GÜNAY A. A., Orejon D., Miljkovic N.

International Mechanical Engineering Congress & Exposition, IMECE2019, Salt Lake City, UT, United States Of America, 08 November 2019

VII. Design of Ultra-Lightweight, Compact Thermal Management System for a 6.6 kW Electric Charger with Extreme Power Density

Foulkes T., Gurumukhi Y., Popovic G., GÜNAY A. A., Bosch S., Liao Z., Chou D., Fernandez K., Pilawa-Podgurski R., Miljkovic N.

International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems, InterPACK2019, Anaheim, CA, United States Of America, 7 - 09 October 2019

VIII. Modular Heat Sinks for Enhanced Thermal Management of Electronics

Hoque M. J., GÜNAY A. A., Stillwell A., Gurumukhi Y., Pilawa-Podgurski R., Miljkovic N.

International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems, InterPACK2019, Anaheim, CA, United States Of America, 7 - 09 October 2019

IX. Droplet evaporation on functional surfaces

Alperen Günay A. A., Gnadt M., Sett S., Oh J., Miljkovic N.

16th International Heat Transfer Conference, IHTC 2018, Beijing, China, 10 - 15 August 2018, vol.2018-August, pp.1285-1291

X. A Spatially-Steady Method to Study Droplet Evaporation Dynamics

GÜNAY A. A., Sett S., Miljkovic N.

15th International Conference on Nanochannels, Microchannels, and Minichannels, Cambridge, Canada, 27 - 31

August 2017

- XI. **Aerogel Solar Thermal Absorbers**
GÜNAY A. A., Nagarajan N., Lopez M., Lenert A., Miljkovic N.
15th International Conference on Nanochannels, Microchannels, and Minichannels, Cambridge, Canada, 27 August 2017
- XII. **Aerogel Solar Thermal Absorbers**
GÜNAY A. A., Nagarajan N., Lopez M., Lenert A., Miljkovic N.
15th International Conference on Nanochannels, Microchannels, and Minichannels, Cambridge, Canada, 27 August 2017
- XIII. **Optimized Silica Aerogel Solar Thermal Absorbers**
GÜNAY A. A., Nagarajan N., Atten M., Sotelo J., Miljkovic N.
ASME 2016 Summer Heat Transfer Conference, HT2016, Washington, Kiribati, 10 - 14 July 2016

Memberships / Tasks in Scientific Organizations

American Physical Society, Member, 2020 - Continues, United States Of America

Thermoelectric Society of Japan, Member, 2020 - Continues, Japan

American Society of Mechanical Engineers, Member, 2015 - Continues, United States Of America

Scientific Refereeing

IEEE IThERM Conference, Conference Paper (Full Text), May 2018

ACS APPLIED MATERIALS & INTERFACES, SCI Journal, March 2018

ASME 2017 Summer Heat Transfer Conference, Conference Paper (Full Text), March 2017

ASME 2016 Summer Heat Transfer Conference, Conference Paper (Full Text), March 2016

Metrics

Publication: 27

Citation (WoS): 148

Citation (Scopus): 150

H-Index (WoS): 6

H-Index (Scopus): 6

Congress and Symposium Activities

American Physical Society, APS March Meeting 2021, Panelists, Colorado, United States Of America, 2021

Annual Meeting of the Thermoelectrics Society of Japan, TSJ2020, Panelists, Kitakyushu, Japan, 2020

International Mechanical Engineering Congress & Exposition, IMECE2019, Attendee, Utah, United States Of America, 2019

International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems, InterPACK2019, Attendee, California, United States Of America, 2019

International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems, InterPACK2019, Attendee, California, United States Of America, 2019

International Heat Transfer Conference, IHTC16, Panelists, Beijing, China, 2018

15th International Conference on Nanochannels, Microchannels, and Minichannels, ICNMM2017, Panelists, Massachusetts, United States Of America, 2017

15th International Conference on Nanochannels, Microchannels, and Minichannels, ICNMM2017, Panelists, Massachusetts, United States Of America, 2017

