

## **Asst. Prof. AHMET ALPEREN GÜNAY**

### **Personal Information**

**Email:** gunaya@metu.edu.tr

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### **International Researcher IDs**

ScholarID: yCWm994AAAAJ

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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**

German, C1 Advanced

Turkish, C2 Mastery

Japanese, B1 Intermediate

English, C2 Mastery

### **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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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 (Peer-Reviewed Journal)
- 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. , Gnad M., Sett S., Oh J., Miljkovic N.

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

## 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. , Gnad 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

## Supported Projects

GÜNAY A. A. , Project Supported by Higher Education Institutions, Metal Organik Kafes (MOF) Kaplamaların Soğutma Kapasitelerinin İncelenmesi, 2022 - Continues

## 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 IITHERM 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): 144

Citation (Scopus): 148

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

ASME Summer Heat Transfer Conference, HT2016, Panelists, District Of Columbia, United States Of America, 2016