

## **Asst. Prof. MEHMET KARAKAYA**

### **Personal Information**

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### **International Researcher IDs**

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Publons / Web Of Science ResearcherID: AAE-1622-2019

ScopusID: 55953559600

Yoksis Researcher ID: 258979

### **Education Information**

Doctorate, Clemson University, Fizik, United States Of America 2011 - 2015

Undergraduate, Selcuk University, Faculty Of Arts And Sciences, Department Of Physics, Turkey 2000 - 2004

### **Foreign Languages**

English, C1 Advanced

### **Certificates, Courses and Trainings**

Vocational Training, Eđiticilerin Eđitimi Sertifika Programı, Gazi University, 2023

### **Dissertations**

Doctorate, Scalable synthesis and energy applications of defect engineered nano materials, Clemson University, Fizik, 2015

### **Research Areas**

Natural Sciences, Engineering and Technology

### **Academic Titles / Tasks**

Assistant Professor, Gazi University, Mühendislik Fakóltesi, Elektrik - Elektronik Mühendisliđi, 2017 - Continues

Research Assistant PhD, Gazi University, Mühendislik Fakóltesi, Elektrik - Elektronik Mühendisliđi, 2016 - 2017

### **Academic and Administrative Experience**

Deputy Head of Department, Gazi University, 2020 - 2021

## Courses

Analog Electronics I, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021  
Optoelectronics, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019  
Scientific Research Methods and Ethics, Postgraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021  
Analog Electronic II, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020  
Communication Electronics, Undergraduate, 2023 - 2024, 2022 - 2023, 2020 - 2021, 2019 - 2020

## Advising Theses

Karakaya M., Design of adjustable positive and negative voltage wideband grid modulator for traveling wave tubes, Postgraduate, N.ŞAHİNDOKUYUCU(Student), 2022  
Karakaya M., İskender İ., DESIGN AND IMPLEMENTATION OF A NEW STEP UP AND DOWN POWER CONVERTER FOR SYNTHETIC APERTURE RADAR SATELLITES, Doctorate, İ.GENCER(Student), 2021  
Karakaya M., İskender İ., Magnetic fields and thermal analysis of two different distribution transformers using finite element methods, Postgraduate, H.AMALIA(Student), 2021  
TAPLAMACIOĞLU M. C., KARAKAYA M., Investigation Of The Effect Of Renewable And Nuclear Power Plants On Frequency Control On A Multi-Area Model, Postgraduate, M.FURKAN(Student), 2019

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

- I. **Real-Time Radar Classification Based on Software-Defined Radio Platforms: Enhancing Processing Speed and Accuracy with Graphics Processing Unit Acceleration**  
Oncu S., KARAKAYA M., Dalveren Y., KARA A., Derawi M.  
Sensors, vol.24, no.23, 2024 (SCI-Expanded)
- II. **Improved transport properties of MgB<sub>2</sub> superconducting round wires via minute addition of gold nanoparticles**  
ÜLGEN A. T., KARABOĞA F., KARAKAYA M., Podila R., Rao A. M., BELENLİ İ.  
CERAMICS INTERNATIONAL, vol.45, no.1, pp.1031-1036, 2019 (SCI-Expanded)
- III. **Optimizing thermal conduction in bulk polycrystalline SrTiO<sub>3</sub>- ceramics via oxygen non-stoichiometry**  
Dehkordi A. M., Bhattacharya S., Darroudi T., KARAKAYA M., Kucera C., Ballato J., Adebisi R., Gladden J. R., Podila R., Rao A. M., et al.  
MRS COMMUNICATIONS, vol.8, no.4, pp.1470-1476, 2018 (SCI-Expanded)
- IV. **Polymer-Derived Silicon Oxycarbide Ceramics as Promising Next-Generation Sustainable Thermoelectrics**  
Kousaalya A. B., Zeng X., KARAKAYA M., Trit T., Pilla S., Rao A. M.  
ACS APPLIED MATERIALS & INTERFACES, vol.10, no.3, pp.2236-2241, 2018 (SCI-Expanded)
- V. **A micro-Raman study of exfoliated few-layered n-type Bi-2 Te<sub>2.7</sub>Se<sub>0.3</sub>**  
Liu F., Hu L., KARAKAYA M., Puneet P., Rao R., Podila R., Bhattacharya S., Rao A. M.  
SCIENTIFIC REPORTS, vol.7, 2017 (SCI-Expanded)
- VI. **Impact absorption properties of carbon fiber reinforced bucky sponges**  
Thevamaran R., Saini D., KARAKAYA M., Zhu J., Podila R., Rao A. M., Daraio C.  
NANOTECHNOLOGY, vol.28, no.18, 2017 (SCI-Expanded)
- VII. **Defect-Engineered Graphene for High-Energy- and High-Power-Density Supercapacitor Devices**  
Zhu J., Childress A. S., KARAKAYA M., Dandeliya S., Srivastava A., Lin Y., Rao A. M., Podila R.

ADVANCED MATERIALS, vol.28, no.33, pp.7185-7193, 2016 (SCI-Expanded)

- VIII. **A facile and scalable approach to fabricating free-standing polymer-Carbon nanotube composite electrodes**  
Arcila-Velez M. R., Emmett R. K., KARAKAYA M., Podila R., Diaz-Orellana K. P., Rao A. M., Roberts M. E.  
SYNTHETIC METALS, vol.215, pp.35-40, 2016 (SCI-Expanded)
- IX. **Tuning the electronic structure of graphene through nitrogen doping: experiment and theory**  
Ketabi N., de Boer T., KARAKAYA M., Zhu J., Podila R., Rao A. M., Kurmaev E. Z., Moewes A.  
RSC ADVANCES, vol.6, no.61, pp.56721-56727, 2016 (SCI-Expanded)
- X. **Enhancing Thermoelectric Properties of Si80Ge20 Alloys Utilizing the Decomposition of NaBH<sub>4</sub> in the Spark Plasma Sintering Process**  
Lahwal A., Zeng X., Bhattacharya S., Zhou M., Hitchcock D., KARAKAYA M., He J., Rao A. M., Tritt T. M.  
ENERGIES, vol.8, no.10, pp.10958-10970, 2015 (SCI-Expanded)
- XI. **Self-Assembled Recyclable Hierarchical Bucky Aerogels**  
KARAKAYA M., Saini D., Podila R., Skove M. J., Rao A. M., Thevamaran R., Daraio C.  
ADVANCED ENGINEERING MATERIALS, vol.17, no.7, pp.990-994, 2015 (SCI-Expanded)
- XII. **Modulation of the Electrostatic and Quantum Capacitances of Few Layered Graphenes through Plasma Processing**  
Narayanan R., Yamada H., KARAKAYA M., Podila R., Rao A. M., Bandaru P. R.  
NANO LETTERS, vol.15, no.5, pp.3067-3072, 2015 (SCI-Expanded)
- XIII. **Dopant-configuration controlled carrier scattering in graphene**  
Anand B., KARAKAYA M., Prakash G., Sai S. S. S., Philip R., Ayala P., Srivastava A., Sood A. K., Rao A. M., Podila R.  
RSC ADVANCES, vol.5, no.73, pp.59556-59563, 2015 (SCI-Expanded)
- XIV. **Influence of carbon nanomaterial defects on the formation of protein corona**  
Sengupta B., Gregory W. E., Zhu J., Dasetty S., KARAKAYA M., Brown J. M., Rao A. M., Barrows J. K., Sarupria S., Podila R.  
RSC ADVANCES, vol.5, no.100, pp.82395-82402, 2015 (SCI-Expanded)
- XV. **Anomalous impact and strain responses in helical carbon nanotube foams**  
Thevamaran R., KARAKAYA M., Meshot E. R., Fischer A., Podila R., Rao A. M., Daraio C.  
RSC ADVANCES, vol.5, no.37, pp.29306-29311, 2015 (SCI-Expanded)
- XVI. **Roll-to-roll production of spray coated N-doped carbon nanotube electrodes for supercapacitors**  
KARAKAYA M., Zhu J., Raghavendra A. J., Podila R., Parler S. G., Kaplan J. P., Rao A. M.  
APPLIED PHYSICS LETTERS, vol.105, no.26, 2014 (SCI-Expanded)
- XVII. **Can Faradaic Processes in Residual Iron Catalyst Help Overcome Intrinsic EDLC Limits of Carbon Nanotubes?**  
Emmett R. K., KARAKAYA M., Podila R., Arcila-Velez M. R., Zhu J., Rao A. M., Roberts M. E.  
JOURNAL OF PHYSICAL CHEMISTRY C, vol.118, no.46, pp.26498-26503, 2014 (SCI-Expanded)
- XVIII. **Roll-to-roll synthesis of vertically aligned carbon nanotube electrodes for electrical double layer capacitors**  
Arcila-Velez M. R., Zhu J., Childress A., KARAKAYA M., Podila R., Rao A. M., Roberts M. E.  
NANO ENERGY, vol.8, pp.9-16, 2014 (SCI-Expanded)
- XIX. **Preferential Scattering by Interfacial Charged Defects for Enhanced Thermoelectric Performance in Few-layered n-type Bi<sub>2</sub>Te<sub>3</sub>**  
Puneet P., Podila R., KARAKAYA M., Zhu S., He J., Tritt T. M., Dresselhaus M. S., Rao A. M.  
SCIENTIFIC REPORTS, vol.3, 2013 (SCI-Expanded)

## Articles Published in Other Journals

### I. PI CONTROL OF A NOVEL POWER CONVERTER BY USING HEURISTIC OPTIMIZATION

Tulay G., KARAKAYA M., Iskender I.

International Journal on Technical and Physical Problems of Engineering, vol.13, no.4, pp.219-224, 2021 (Scopus)

## II. Performance analysis of a distribution transformer using ansys maxwell

Ariani H., Iskender I., KARAKAYA M.

International Journal on Technical and Physical Problems of Engineering, vol.12, no.4, pp.57-62, 2020 (Scopus)

## Books & Book Chapters

### I. Carbon Nanotube Materials to Realize High-Performance Supercapacitors

Childress A., Zhu J., Saini D., KARAKAYA M., podila R., Rao A. M.

in: Nanotechnology for Energy Sustainability, Prof. Baldev Raj, Prof. Marcel Van de Voorde and Dr. Yashwant Mahajan, Editor, Wiley-VCH Verlag GmbH Co. KGaA, pp.377-390, 2017

## Refereed Congress / Symposium Publications in Proceedings

### I. YÜRÜYEN DALGA TÜPLERİ İÇİN AYARLANABİLİR POZİTİF VE NEGATİF GERİLİMLİ GENİŞ BANT IZGARA MODÜLATÖR TASARIMI

Şahindokuyucu N., Karakaya M.

5. Uluslararası Mühendislik Bilimleri ve Multidisipliner Yaklaşımlar Kongresi, İstanbul, Turkey, 3 November - 05 December 2022, pp.963

### II. MODELING AND PERFORMANCE ANALYSIS OF 250 KVA DISTRIBUTION TRANSFORMER USING ANSYS MAXWELL

Ariani H. A., İSKENDER İ., KARAKAYA M.

The 16th International Conference on "Technical and Physical Problems of Engineering", İstanbul, Turkey, 12 October 2020, pp.1-7

### III. Modelling of automatic generation control for multi-area integrated power system equipment including renewable energy systems

YILMAZ M. F., GÖZDE H., KARAKAYA M., TAPLAMACIOĞLU M. C.

Renewable Energy Sources - Research and Business (RESRB) 2019 Conference, 8 - 09 July 2019

### IV. Raman spectroscopy of exfoliated few layered n type Bi<sub>2</sub>Te<sub>3</sub>

LIU F., KARAKAYA M., PUNEET P., PODILA R., BHATTACHARYA S., RAO A.

American Physical Society (APS) March Meeting, BALTIMORE, United States Of America, 14 - 18 March 2016

### V. Biomolecular interactions of emerging two dimensional materials with aromatic amino acids

MALLINENI S. S. K., KARAKAYA M., PODILA R., RAO A.

American Physical Society (APS) March Meeting, BALTIMORE, United States Of America, 14 - 18 March 2016

### VI. Defect induced multiphoton absorption and photoluminescence in BN for bio imaging

DONG Y., KARAKAYA M., PODILA R., RAO A.

American Physical Society (APS) March Meeting, BALTIMORE, United States Of America, 14 - 18 March 2016

### VII. One pot electrochemical synthesis of polymer CNT metal nanoparticles for fuel cell applications

VENTRAPRAGADA L., ZHU J., KARAKAYA M., PODILA R., RAO A.

American Physical Society (APS) March Meeting, BALTIMORE, United States Of America, 14 - 18 March 2016

### VIII. Study of quantum capacitance in N doped few layer graphene

KARAKAYA M., ZHU J., PODILA R., SRIVASTAVA A., RAO A.

American Physical Society (APS) March Meeting, 2 - 06 March 2015

### IX. Origin of the 2450 cm<sup>-1</sup> peak G band in the Raman spectrum of graphene

PODILA R., RAO R., KARAKAYA M., ZHU J., RAO A.

American Physical Society (APS) March Meeting, San-Antonio, Northern Mariana Islands, 2 - 06 March 2015

### X. Roll to Roll Production of Spray Coated N doped Carbon Nanotube Electrodes for Supercapacitors

KARAKAYA M., ZHU J., RAGHAVENDRA A., PODILA R., PARLER S., KAPLAN J., RAO A.

American Physical Society (APS) March Meeting, San-Antonio, Northern Mariana Islands, 2 - 06 March 2015

### XI. Roll-to-roll synthesis of vertically aligned carbon nanotube electrodes for electrical double layer

## capacitors

Arcila-Velez M. R., Zhu J., Childress A., KARAKAYA M., Podila R., Rao A. M., Roberts M. E.

248th National Meeting of the American-Chemical-Society (ACS), San-Francisco, Costa Rica, 10 - 14 August 2014, vol.248

- XII. **Fe catalyzed carbon nanotubes for high energy density carbon based supercapacitors**  
EMMETT R., KARAKAYA M., ROBERTS M., Arcilla Velez M., PODILA R., RAO A.  
American Physical Society (APS) March Meeting, DENVER, United States Of America, 3 - 07 March 2014
- XIII. **Impact response of helically coiled carbon nanotube foams**  
DARAIO C., KARAKAYA M., RAMATHASAN T., RAO A.  
American Physical Society (APS) March Meeting, DENVER, United States Of America, 3 - 07 March 2014
- XIV. **Static and dynamic response of bucky sponges**  
RAMATHASAN T., KARAKAYA M., PODILA R., DARAIO C., RAO A.  
American Physical Society (APS) March Meeting, DENVER, United States Of America, 3 - 07 March 2014
- XV. **Electrochemical characterization of chemical vapor deposition grown few layer graphene**  
NARAYAN R., KARAKAYA M., PODILA R., BANDARU P., RAO A.  
American Physical Society (APS) March Meeting, DENVER, 3 - 07 March 2014
- XVI. **Biopolymer nanocarbon composite electrodes for use as high energy high power density electrodes**  
KARAKAYA M., ROBERTS M., ARCILLA VELEZ M., ZHU J., PODILA R., RAO A.  
American Physical Society (APS) March Meeting, DENVER, United States Of America, 3 - 07 March 2014
- XVII. **Roll to Roll production of carbon nanotubes based supercapacitors**  
ZHU J., CHILDRESS A., KARAKAYA M., ROBERTS M., PODILA R., RAO A.  
American Physical Society (APS) March Meeting, 3 - 07 March 2014
- XVIII. **Recyclable Bucky sponges for De emulsification and Oil spill cleaning**  
KARAKAYA M., Saini D., Podila R., Rao A.  
American Physical Society (APS) March Meeting, 18 - 22 March 2013
- XIX. **Redox electrodes comprised of polymer modified carbon nanomaterials**  
Roberts M., Emmett R., KARAKAYA M., Podila R., Rao A.  
American Physical Society (APS), 18 - 22 March 2013
- XX. **Thermoelectric performance of chemically exfoliated n Bi<sub>2</sub>Te<sub>3</sub>**  
Puneet P., KARAKAYA M., PODILA R., ZHU S., HE J., TRITT T., SKOVE M., RAO A.  
American Physical Society (APS) March Meeting, BALTIMORE, United States Of America, 18 - 22 March 2013
- XXI. **Electron diffraction studies on CVD grown bi layered graphene**  
Lingam K., KARAKAYA M., Podila R., Quin H., Rao A.  
American Physical Society (APS) March Meeting, Baltimore, United States Of America, 18 - 22 March 2013

## Metrics

Publication: 43

Citation (WoS): 643

Citation (Scopus): 681

H-Index (WoS): 12

H-Index (Scopus): 12

## Scholarships

YLSY, Ministry of Education, 2008 - 2015