Melih Can Tasdelen

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ABOUT ME

As a research assistant specializing in materials science and microelectronics systems, I bring extensive expertise in the semiconductor industry, particularly in micro/nanofabrication technologies and cleanroom operations. Among my research focuses on the development of graphene-based sensors along with their integration into microelectronic systems, currently, I am working on sustainable, flexible and printed multimodal electronics for continuous health monitoring applications.

EDUCATION

Ph.D. in **Material Science and Nano Engineering**, *Sabancı University, Istanbul, Turkey* ***2020-present***
Thesis: Development of Functional Magnetic Ink and Biodegradable Substrate Materials for Green, Flexible, and Printed Electronics and Investigation of Their Performance Limits

M.Sc. in **Materials Science and Nano Engineering**, *Sabancı University, Istanbul, Turkey* ***2018-2020***
Thesis: CMOS-Compatible Scalable Microfabrication of Graphene Polymeric Strain Gauge Arrays

B.Sc. in **Materials Science and Nano Engineering**, *Sabancı University, İstanbul, Turkey* ***2011-2016***
Thesis: Building an Active Fiber Composite Continuous Sensors (AFCS) Utilized as Vibration Energy Harvesters

SKILLS & EXPERTISE

Laboratory

Expert with setup and operating a variety of cleanroom, micro/nanotechnology, physics, chemistry, optics, and materials laboratories and experimental devices, such as:

- **Deposition**: Chemical and Physical Vapor Deposition (CVD, PVD), Sputtering, Dip Coating
- **Patterning & Packaging**: UV Lithography, Wafer Dicer & Scriber
- **Etching**: Deep Reactive-Ion Etching (DRIE), Plasma Asher
- **Characterization**: Scanning Electron Microscopy (SEM), Raman Spectroscopy, Profilometer, X-Ray Diffractometer (XRD), Probe station (e.g., I-V measurement), UV-Vis Spectroscopy, Dynamic Light Scattering (DLS) Particle Analyzer, Contact Angle - Surface Tension Measurement, FT-IR Spectroscopy, and Ellipsometer

Softwares

Comsol, Ansys, LayoutEditor, KLayout, LaTeX, Origin, MS Office

Communication

English (Fluent), Turkish (Native)

EXPERIENCE

Sabanci University Nanotechnology Research and Application Center (SUNUM) **2024 – present**
Research Assistant Istanbul

- Development of Functional Magnetic Ink and Biodegradable Substrate Materials for Green, Flexible, and Printed Electronics and Investigation of Their Performance Limits, *applied to TUBITAK 1001 - The Scientific and Technological Research Projects Funding Program,* **under review**, **2024 -** .

Sabanci University Nanotechnology Research and Application Center (SUNUM) **2022 – present**
Research Assistant Istanbul

- Development of High-Value-Added, Broad-End-Product-Range National Technologies through University-Industry Collaboration in the Field of Flexible Electronic Devices and Thin Film Applications, *supported in part by Sabancı University and the Scientific and Technological Research Council of Turkey (TUBITAK),* **under grant 119C091 , 2020-2027** .

- Toward Inkjet-printing of Flexible Graphene-based Sustainable Multimodal Electronics for Continuous Health Monitoring, *supported in part by Sabancı University Nanotechnology Research and Application Center (SUNUM) and the Scientific and Technological Research Council of Turkey (TUBITAK),* **under grant 20AG028**, **2021-2025** .

The Turkish Military Electronics Industries (ASELSAN) **2021 – 2022**

Research Assistant Istanbul

- The Low-cost, Accessible Process Technology Development for Fabrication of High Density Interconnect Printed Circuit Boards (HDI-PCB), *supported in part by Sabancı University and The Turkish Military Electronics Industries, (ASELSAN),* **2021-2022** .

Sabanci University Nanotechnology Research and Application Center (SUNUM) **2018 – 2021**

Research Assistant Istanbul

- Transfer-free, Scalable Micro-fabrication of Few-layer Graphene Integrated Strain Gauges on Flexible Photo-polymer, *supported by TUBITAK 3501 - Career Development Program (CAREER),* **under grant 117E271**, **2018-2021** .

TEACHING EXPERIENCE

Semiconductor Process Technology, *Sabancı University* **2019-2022**

- Trained more than 100 students in cleanroom with microfabrication tools and transistor fabrication process

Science of Nature, *Sabancı University* **2018-2020**

- Enhanced learning of students through active contributions in lectures, encouraging their engagement and holding office hours

Differential Equations, *Sabancı University* **2018 (Spring Semester)**

- Teaching Assistant

PUBLICATIONS

Journal Articles

- Najafabadi, A. M. A., Ballipinar, F., Tasdelen, M. C., Uzun, A., Yapici, M. K., Skrivervik, A., Tekin, I. Wide scan angle multibeam conformal antenna array with novel feeding for mm-wave 5G applications. Accepted to, *Microelectronic Engineering*, 112261, **2024**
- M. Vafaei; M. Tasdelen; Farid Sayar Irani; Murat Kaya Yapici. Performance Evaluation of a MEMS-compatible Flexible Graphene Bolometer for Chamberless NDIR Gas Sensing. Accepted to, *IEEE Sensors Letters*, 1-4, **2024**
- Farid Sayar Irani, Ali Hosseinpour Shafaghi, Melih Can Tasdelen, Tugce Delipinar, Ceyda Elcin Kaya, Guney Guven Yapici, Murat Kaya Yapici. Graphene as a Piezoresistive Material in Strain Sensing Applications. Accepted to, *Micromachines*, 13 (1), 119, **2022**
- Farid Sayar Irani, Melih Can Tasdelen, Muhammad Umar, Murat Kaya Yapici. Transfer-Free Scalable Micro-fabrication of Few-Layer Graphene Integrated Strain Gauges on Flexible SU-8 Photopolymer. Submitted to, **IOP 2D Materials 2024**
- Tasdelen, M. C., et al. Toward inkjet-printing of flexible graphene-based sustainable multimodal electronics for continuous health monitoring (*in preparation*).

Conferences

- Farid Sayar Irani, Melih Can Tasdelen, Murat Kaya Yapici. High Resolution and Sensitive Graphene Polymeric Strain Gauge. Submitted to, *EUROSENSOR*, **2024**
- Ozek, E. A., Tasdelen, M. C., Tanyeli, S., Yapici, M. K.. Strain sensing graphene functionalized PET films based on a facile dip coating approach. Submitted to, *IFETC*, 1-3, **2021**

REFERENCES

References available upon request.