



This project is co-financed by the European Union
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ICTürkiye2025
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ORGANIZATION: ODTU MEMS CENTER

WORKSHOP NAME: Digital, Chips and 6G

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Description of the Organisation



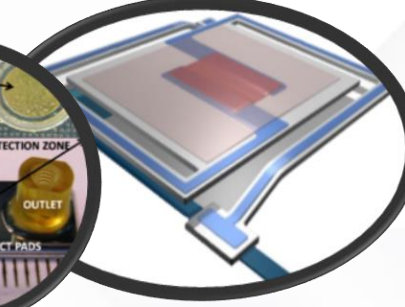
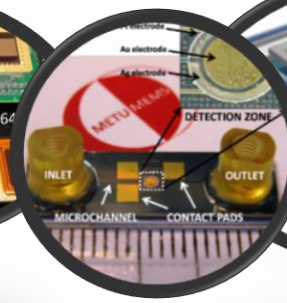
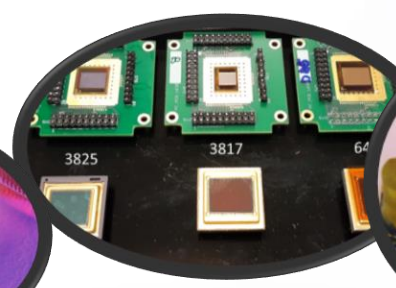
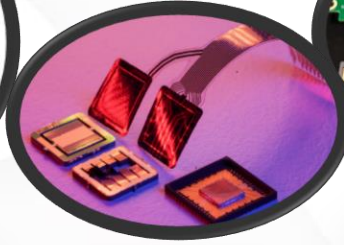
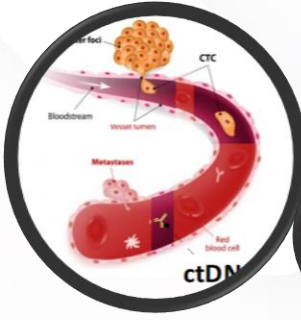
METU MEMS Center is among the first four National Research Centers (Law No. 6550) conducting R&D activities in the field of micro-electro-mechanical systems (MEMS).

The accumulated knowledge by long years of research, practical experience, trained workforce and qualified cleanroom infrastructure qualified us as a Center of Excellence in MEMS.

We have been contributing to the industry by generating economic value with cost-effective, competitive, value-added, and critical technology-oriented strategic products and services



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**ODTÜ
MEMS
MERKEZİ**

Expertise

- **Sensors**
- **Microfabrication**
- **R&D up to TRL 6 (Prototype)**
- **Low rate fabrication**

COMPETENCE

- ❖ Lithography
- ❖ Metal coating
- ❖ High Temperature Coating
- ❖ Dry Coating and Dry Etching in Plasma Environment
- ❖ Fluid Etching and Cleaning
- ❖ Measurement, Inspection, Test
- ❖ Electronic Packaging and Integration
- ❖ Bio-MEMS

WIDE RANGE of HIGH TECH EQUIPMENT

ASML Stepper
Suss Automatic Photoresist Coater
EVG Double-sided mask aligner
EVG Wafer bonder
STS DRIE, RIE, PECVD, ICP RIE
Diffusion and oxidation furnaces
LPCVD oxide, nitride, poly
Evaporation Sputtering
Anisotropic silicon etch
Isotropic silicon etch
Electrochemical etch-stop
Electroplating
SU-8 Molding
Wafer dicing
SEM, FESEM
Critical point drying
Veeco Optical Profilometer
Heidelberg DWL200 Mask Maker
FTIR-VASE Spectrometer
Veeco Dektak 8

Affiliated Test Centre



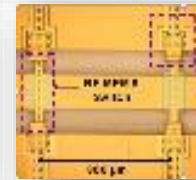
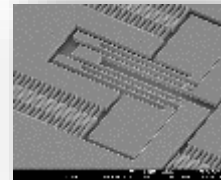
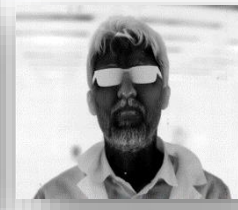
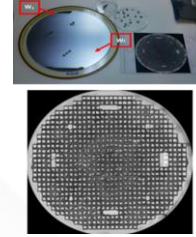
Research Fields

BioMEMS

- ❖ Detection of DNA molecules circulating in blood by microfluidic systems
- ❖ Smart organ-on-a-chip platform
- ❖ Bimodal sensors for diagnosis of body fluids
- ❖ Microfluidic in-vitro diagnosis platform

Inertial Sensors

- ❖ North finder
- ❖ MEMS contractile cell test system
- ❖ Tunable Fabry-Pérot MEMS filter



Device Packaging

Hermetic Packaging
Wafer Level Packaging
Ceramic Metal Packaging

Image Sensors

- ❖ Microbolometre Sensors
- ❖ Type-2 Superlattice (T2SL) Sensors
- ❖ Colloidal Quantum Dot (CQD) Sensors

RF MEMS (GHz-THz)

- ❖ THz Imaging 16x16 Array Sensor
- ❖ THz Multiple Frequency Sensor
- ❖ RF MEMS Components

On-going Projects

Project	Funding
MAESTRO - Micro Medical Technologies Platform	TÜBİTAK 1004
Development of 1-3 μm wavelength Ga/Sb/AlSb/InAs T2SL NBN dedector	TÜBİTAK 1001
OrChESTRA - Organ-on-a-chip Focused Strategic Partnership	EU (Twinning)
PLASNANO - Nano-Scale Development of Plasmonic Amplifiers Based on 2D Materials	EU (ERC Pathfinder)
Development of a Compass based on High Precision MEMS Gyroscope	Industry Contracted Research
Development of MEMS based Touch Alcohol Dedection System - Phase 1	Industry Contracted Research
BIGG-LABSOUT	TÜBİTAK 1601
Fabrication of Photodiode Structures for IR Imaging Sensors based on Colloidal Quantum Dots	TÜBİTAK 1005
Growth, Characterization and Fabrication of Quantum Cascade Laser System based on Long Wavelength GaAs/AlGaAs	TÜBİTAK 1001

Potential Project Calls

Call Topic: **EIC Pathfinder 2025 (HORIZON-EIC-2025-PATHFINDEROPEN)**

Deadline Dates: 21 May 2025

Objectives:

- ☐ Convincing long-term vision of a radically new technology that has the potential to have a transformative positive effect to solving a challenge in our economy and society.
- ☐ Concrete, novel and ambitious science-towards-technology breakthrough, providing advancement towards the envisioned technology.
- ☐ High-risk/high-gain research approach and methodology, with concrete and plausible objectives.

Potential Project Calls

CLUSTER: **HEALTH**

The Health Cluster will support the KSOs set out in the Horizon Europe strategic plan (2025-2027), by enhancing the understanding of climate change impacts on health, developing tools to protect against global health challenges, and reducing the sector's carbon footprint.

Deadline Dates: 3 June 2025 / 18 September 2025

Destinations:

- ☐ Staying healthy in a rapidly changing society
- ☐ Living and working in a health-promoting environment
- ☐ Tackling diseases and reducing disease burden
- ☐ Ensuring equal access to innovative, sustainable, and high-quality
- ☐ Developing and using new tools, technologies and digital solutions for a healthy society
- ☐ Maintaining an innovative, sustainable, and competitive EU health industry

Potential Project Calls

CLUSTER: CIVIL SECURITY FOR SOCIETY

Cluster 3 provides a research and innovation response to a context of rapidly changing threats and challenges to internal security, the security of citizens, critical infrastructure and the security of society as a whole. These threats are driven by geopolitical, technological and societal changes.

Deadline Dates: 12 November 2025

Destinations:

- ☐ Better protect the EU and its citizens against Crime and Terrorism (FCT)
- ☐ Effective management of EU external borders (BM)
- ☐ Resilient infrastructure (INFRA)
- ☐ Increased Cybersecurity (CS)
- ☐ Disaster-Resilient Society for Europe (DRS)
- ☐ Strengthened Security Research and Innovation (SSRI)

Potential Project Calls

CLUSTER: **DIGITAL, INDUSTRY AND SPACE**

Cluster 4 "Digitisation, Industry and Space" of Horizon Europe supports digital as well as key industrial and space technologies that are of strategic importance for Europe's industrial future. The aim is to build a resilient, green and digital Europe.

Deadline Dates: 23 September 2025 / 4 September 2025 / 02 October 2025 / 10 February 2026

Destinations:

- ☐ Achieving global leadership in climate-neutral, circular and digitised industrial and digital value chains
- ☐ Achieving technological leadership for Europe's open strategic autonomy in raw materials, chemicals and innovative materials
- ☐ Developing an agile and secure single market and infrastructure for data-services and trustworthy artificial intelligence services
- ☐ Achieving open strategic autonomy in digital and emerging enabling technologies
- ☐ Open Strategic Autonomy in Developing, Deploying and Using Global Space-Based Infrastructure, Services, Applications and Data
- ☐ Digital and industrial technologies driving human-centric innovation

Potential Project Calls

CLUSTER: FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENT

Cluster 6 will serve the new priorities for 2024-2029 with a focus on “Sustaining our quality of life: food security, water and nature”, “A new plan for Europe’s sustainable prosperity and competitiveness”, “Supporting people, strengthening our societies and our social model” and “Protecting our democracy, upholding our values”.

Deadline Dates: 4 – 16 – 17 – 24 September 2025

Destinations:

- ☐ Biodiversity and ecosystem services
- ☐ Fair, healthy and environment-friendly food systems from primary production to consumption
- ☐ Circular economy and bioeconomy sectors
- ☐ Clean environment and zero pollution
- ☐ Land, ocean and water for climate action
- ☐ Resilient, inclusive, healthy and green rural, coastal and urban communities
- ☐ Innovative governance, environmental observations and digital solutions in support of the Green Deal



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