



Horizon 2020 Secure Societies European Info Day and
Brokerage Event

Brussels , 6-7 March 2017

TUBITAK MAM

Institute of Chemical Technology- Turkey

Dr. Melek Erol

melek.erol@tubitak.gov.tr

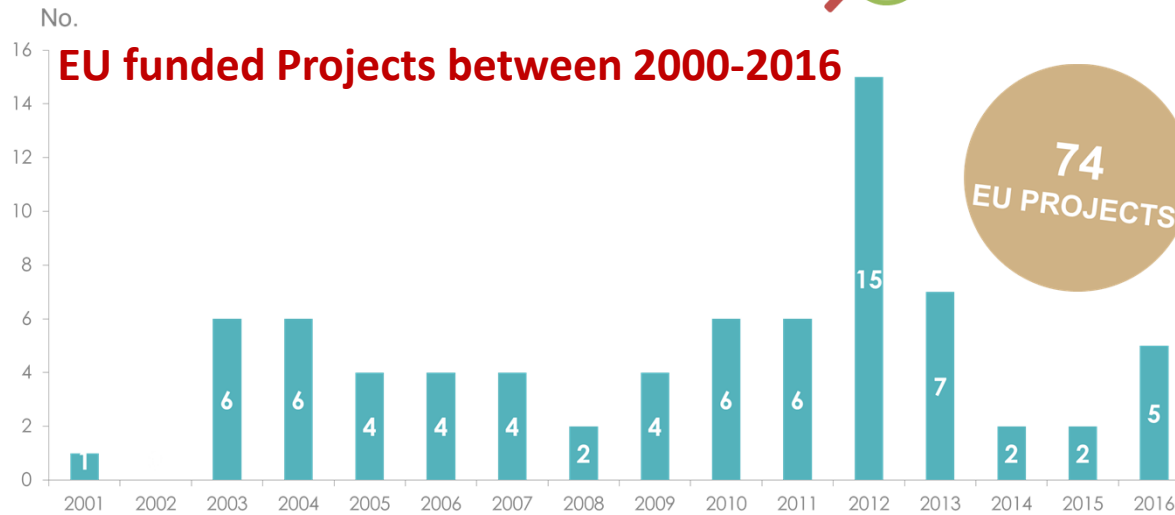
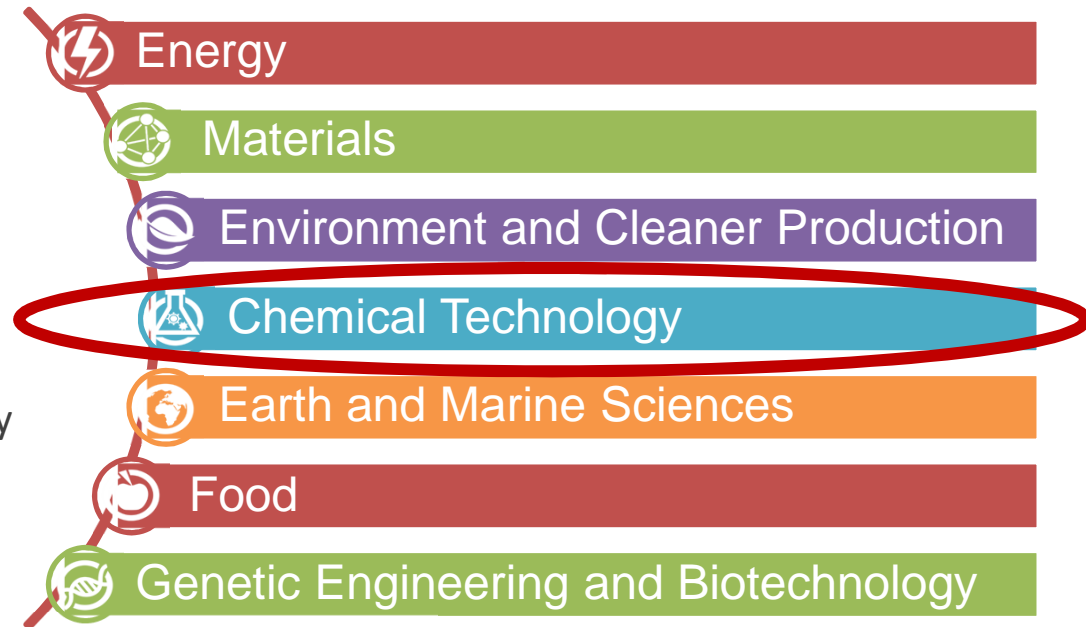
TUBITAK Marmara Research Center



Institutes



- ✓ Leader science&technology center in Turkey
- ✓ Established in 1972
- ✓ Located in Kocaeli, Turkey



Co-funded by the Horizon 2020
Framework Programme of the European Union

Defense Technologies & Forensic Science Strategic Business Unit

- ❖ Provides R&D support to the Turkish security forces, defense industry and rescue units **in the field of chemistry.**
- ❖ R&D up to the prototype production level in line with the customer demands.
- ❖ Expertise in the **design of new materials, synthesis, characterization, scale up studies** and **technology transfer to industry.**

➤ **CBRN Defense Materials**

- Regenerative CBRN filters
- CBRN Masks and Breathing Apparatus
- Nano Materials for Decontamination
- Protective Clothings and Coatings

➤ **Gas Capture Systems**

- Solid Adsorbents
- Gas Capturing Processes and Systems

➤ **Energetic Materials**

- Explosives
- Green Energetic Materials
- Rocket Fuels

➤ **Other Defence Materials**

- Catalysts for Hydrogen Combustion
- Smart Polymers
- Polymer Nano Composites

➤ **Forensic Science**

- National Gas Munitions for The Purpose of Riot Control
- Latent Fingerprint Products



Examples to Our Projects



EU funded projects:

- *Development of New Type Proton Conductive Polymer Based Membranes (COST)*
- *New Methods for Stereoselective Radical/Redox Reactions (COST)*
- *Efficient Aluminium Salt Cake Recycling (ALUSALT- FP 7)*

EU R&D proposals:

- *(Na-Glo-Mon)Nanosensor Gloves for Environmental and Industrial Monitoring Based on Hybrid Carbon Nanotubes/Graphene Films (FP7-NMP)*
- *Surface Modifications of Graphene for Chemical Gas and Liquid Sensing Transduction (Flag Era)*
- *Detection of Various Toxic and Biologically Active Anions and Biogenic Amines in Liquids using Quartz Microbalance Sensors coated with Poly(2-oxazoline) Derivatives*
- *Development of The Single-Electron Transfer Catalysis (FP7)*
- *Advanced Materials for Power Electronics based on Wide Band Gap Semiconductor Devices Technologies (H2020)*

National projects:

- *Production of Palladium Catalyst by Recycling Method Used for Hydrogen Combustion*
- *Development of Gas Adsorbent and Catalyst for Escape Apparatus Used in Underground Mines*
- *Fingerprint Development Products (Lab scale and large-scale)*
- *Development of Gas Munitions for The Purpose of Riot Control*
- *High Energy Explosive Materials*
- *Infrastructure Project for the Characterization of Energetic Materials*
- *Developing ¹⁰B Enriched Boron Isotope Products*
- *Development of Production Technologies for Boric Acid with Low Alkali and Sulphate Content*



Co-funded by the Horizon 2020
Framework Programme of the European Union



Regenerative nanomaterials for CBRN protection

- *Objectives:*
 - To develop new generation chemicals / regenerative nanomaterials for decontamination.
 - To develop new generation chemicals / regenerative nanomaterials with multifunctional surface groups for novel CBRN filters for respiratory protection.
 - To develop regenerative CBRN protective suits against general toxic threats (with no changing of air filters).
- *Expected results :*
 - Respiratory/personel protection for longer duration.
 - Effective towards an extended range of toxic agents.
 - Reusable CBRN protective suits
 - TRL 4 to 7



Consortium - Profile of Known and Required Partners



No	Partner Name	Type	Country	Role in the Project
01	To be confirmed	SME	Turkey?	Coordinator? (PPE development)
02	TUBITAK MAM ICT	RTD	Turkey	Partner, development of novel nanomaterials, characterization
03	??	SME	all	PPE development
04	??	RTD	all	CBRN tests
05	??	RTD	all	Material development and tests
06	??	all	all	Legal and humanitarian aspects
07	??	RTD	all	Environmental and toxicological tests
08	Practitioner ??		all	End-user perspective



Dr. Melek Erol

TUBITAK MAM

Institute of Chemical Technology

Kocaeli/Turkey

Tel: +90 262 677 3845

E-mail: melek.erol@tubitak.gov.tr

Web: <http://kte.mam.tubitak.gov.tr/>

