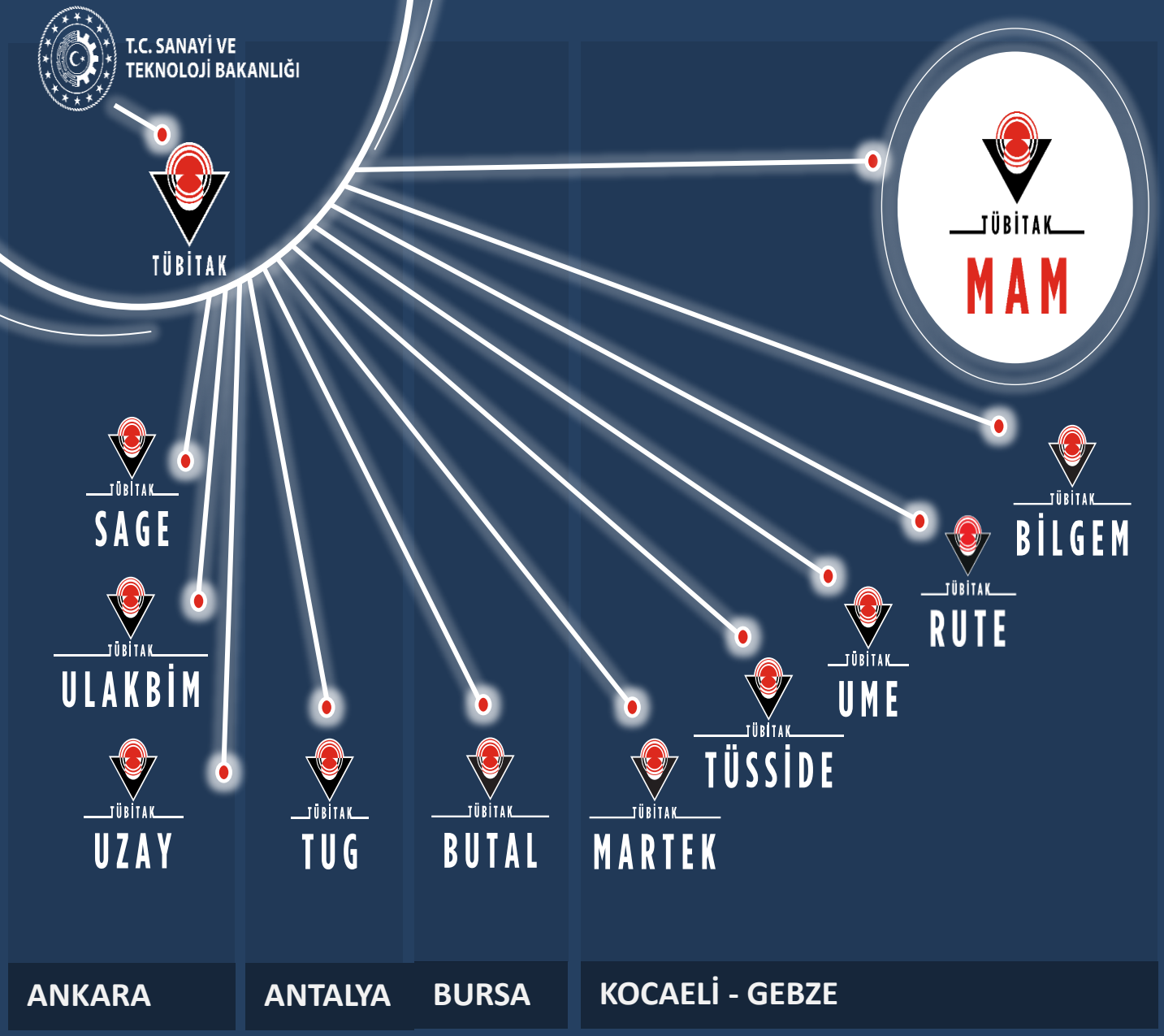
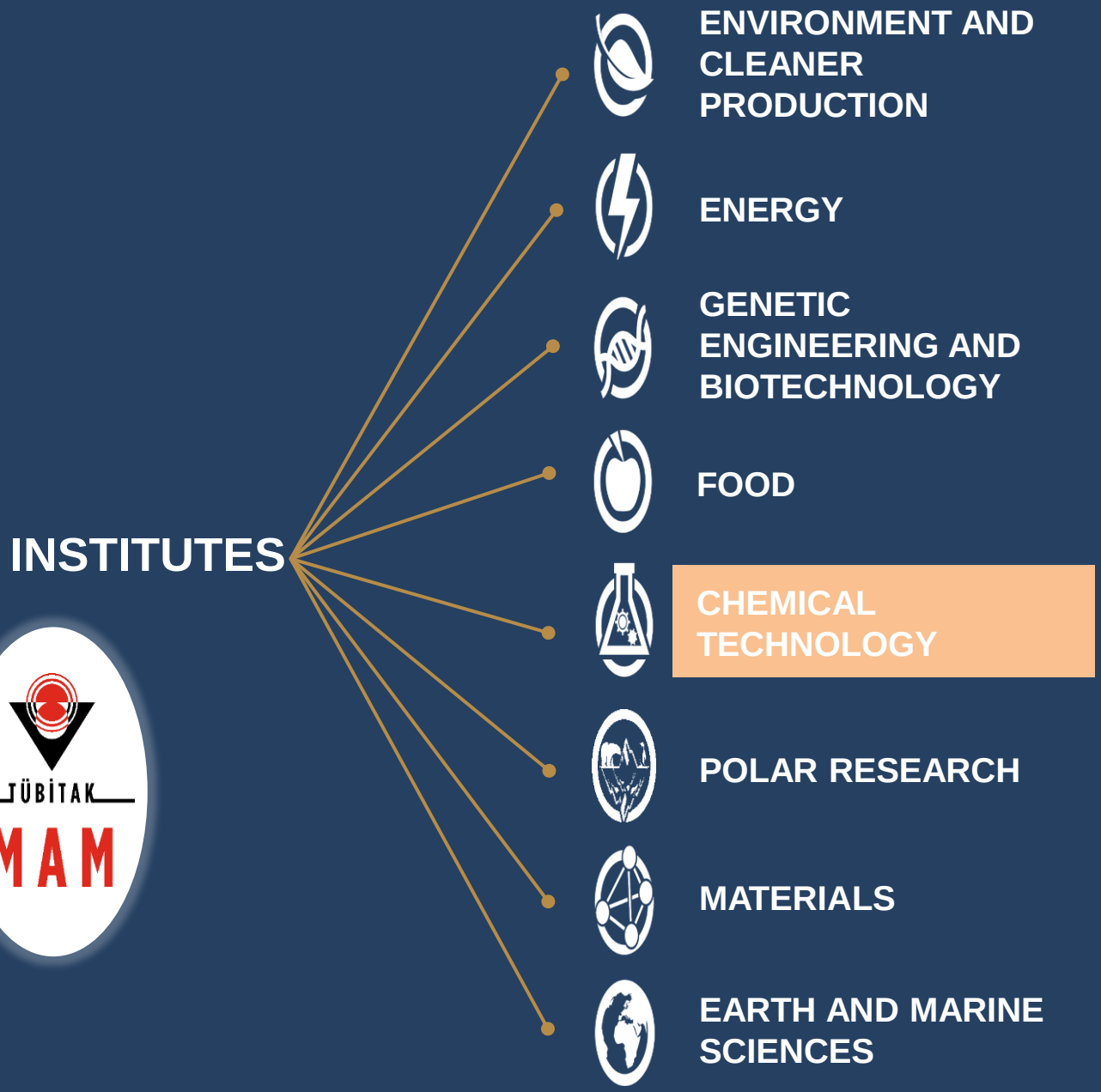
This project is co-financed by the European Union and the Republic of Turkey
Bu proje Avrupa Birliği ve Türkiye Cumhuriyeti tarafından finanse edilmektedir

Assoc. Prof. Tuba ERDOGAN BEDRİ
Chief Researcher
TUBITAK MAM
Institute of Chemical Technology
tuba.bedri@tubitak.gov.tr

OUR POSITION IN TUBITAK FAMILY




INSTITUTES
TÜBİTAK
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MATERIALS
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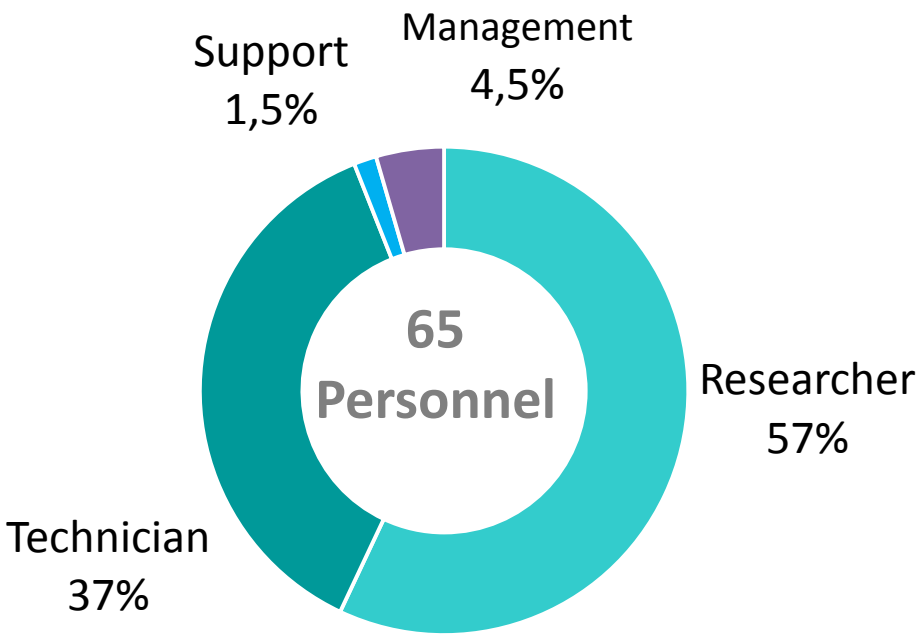
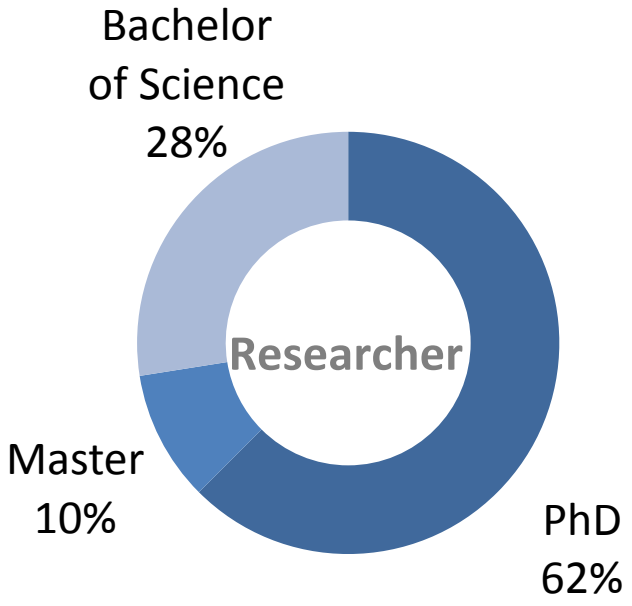
Human Resources





+9 Scholarship Student

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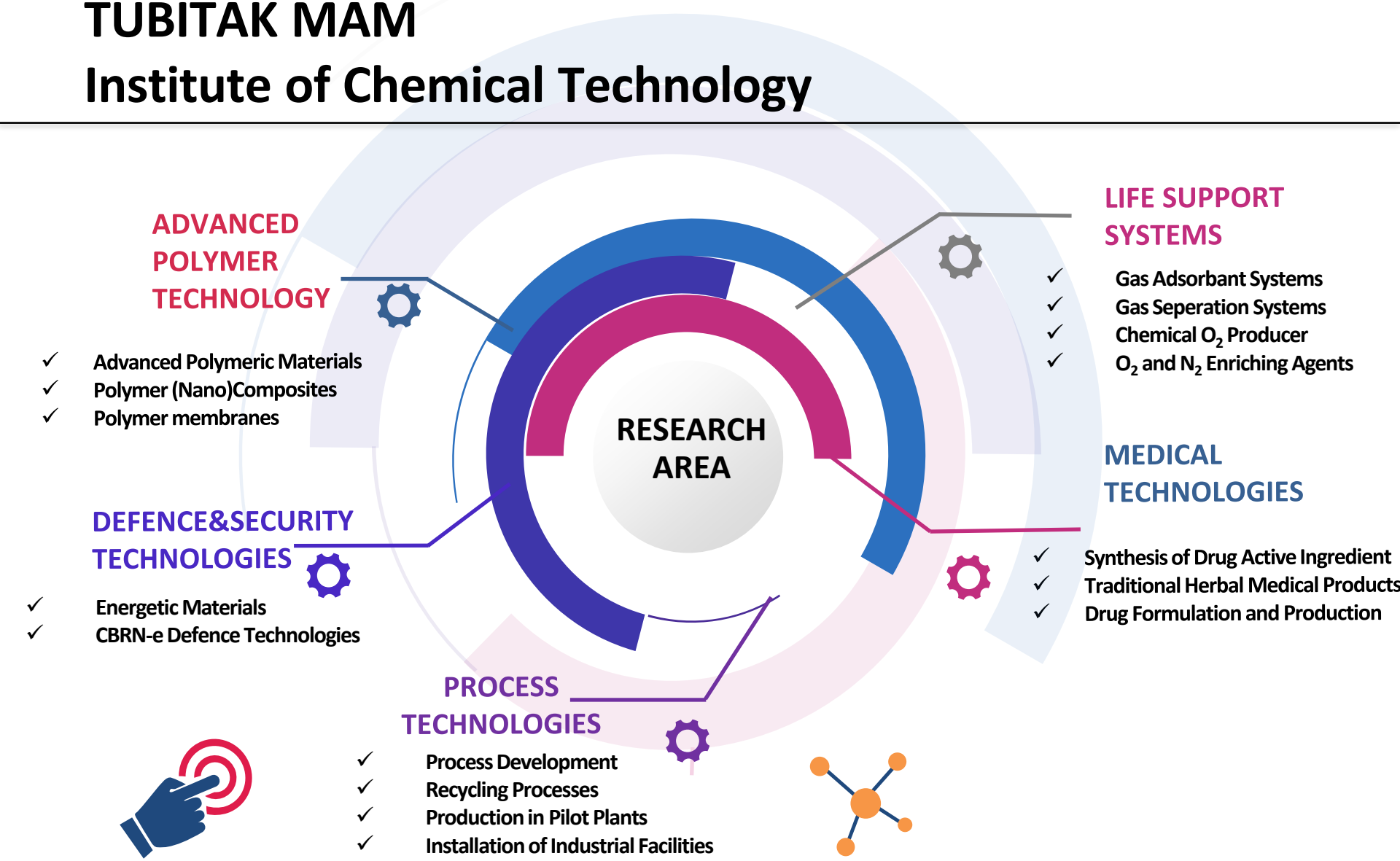

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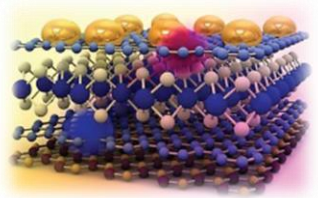
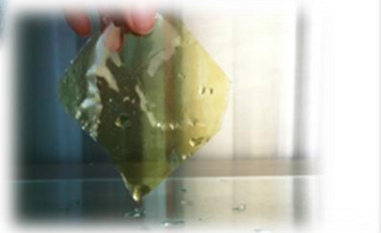
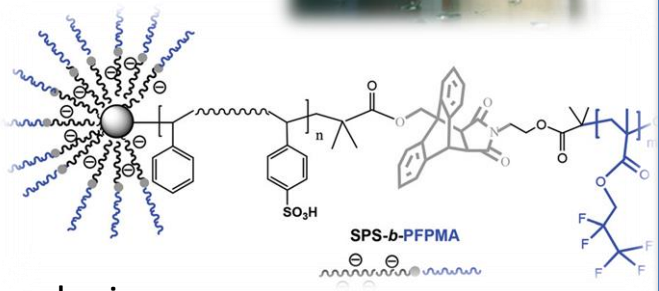


- **Advanced Polymer Composites**
  - Thermal conductive polymer nanocomposites for thermal management
  - High Performance Resins
    - Thermoset and thermoplastic resin design
    - Fiber desizing/resizing technology
    - Hot-melt prepreg production



- **Polymer Membran Technology**
  - Proton conducting polymer membranes
  - Selective permeable polymer membranes



- **Macromolecular Engineering**
  - Synthesis of well-defined polymer structures having different topologies

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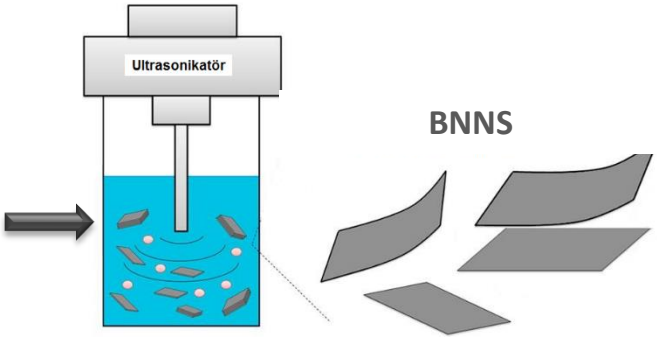
Thermal Conductive Polymer Nanocomposites

h-BN Nanosheet (BNNS) Production and Chemical Modification of BNNS

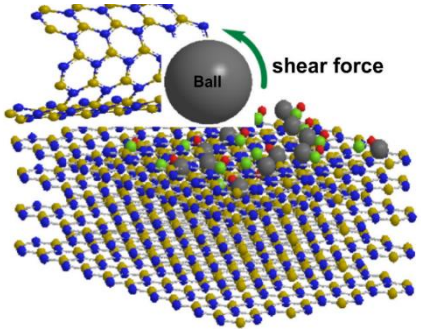
h-BN
d=200-450 nm

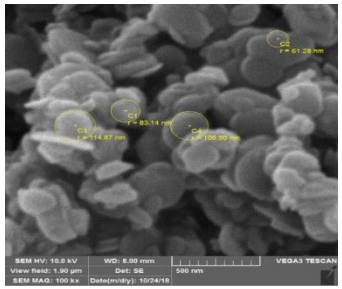
Liquid Exfoliation

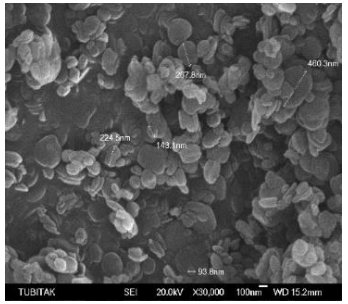


d=50-120 nm, cyrstal size: 11,5 nm)

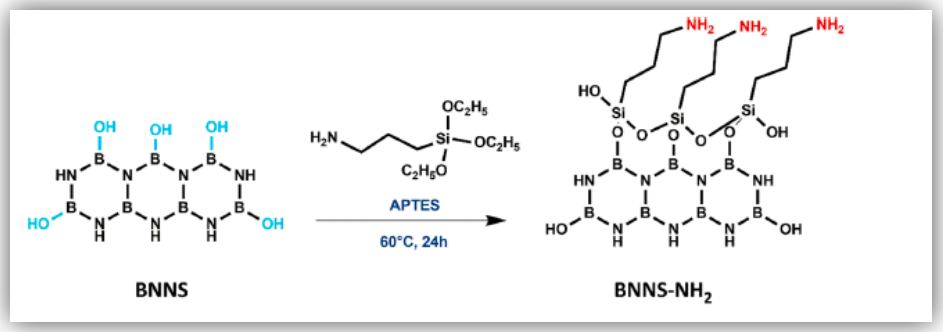
Mechanical Exfoliation







Chemical Modification of BNNS



Composites: Part A, 146 (2021), 106406

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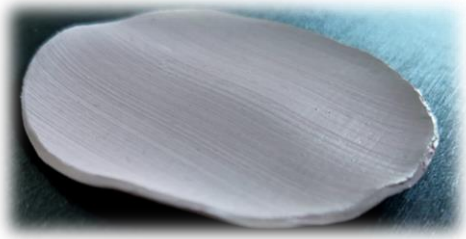
Thermal conductive polymer nanocomposites for thermal management



Thermal Interface Materials

Product Specification

- Thickness of boron nitride nanosheet: <10 nm
- Thermal Conductivity: 0,8-1,2 W/mK, Electrical resistance: 2-4,5 x 10^{16} ohm.cm
- Thermoplastic matrix
- High interface compatibility

Composites: Part A, 146 (2021), 106406

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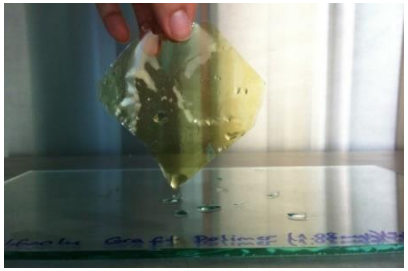
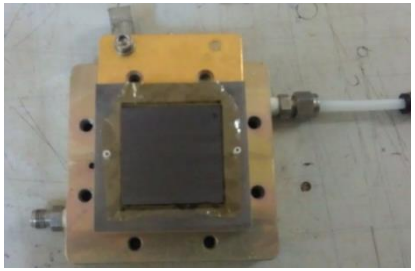
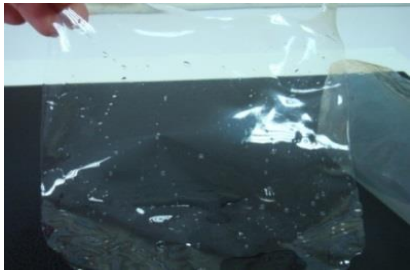
Functional Nanoporous/Microporous Flat Sheet Membranes

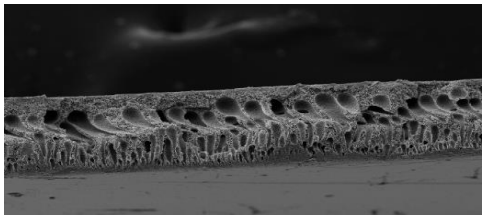
Proton conducting polymer membranes

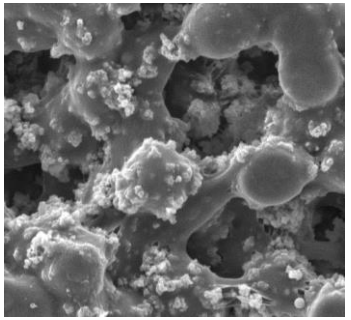






Selectively permeable polymer membranes





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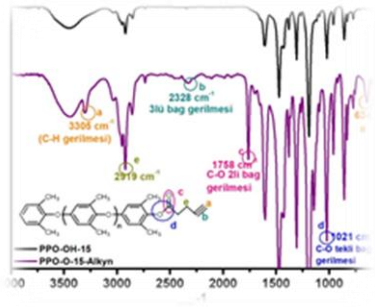
High Performance Termoset Resins

- Termoset resin design and synthesis
- Cure kinetics and rheology characterization of the resins for prepreg applications
- Different surface treatments of carbon fibers



Project Idea

Advanced polymer research group can participate in following call topics:

- **HORIZON-CL4-2022-RESILIENCE-01-10: Innovative materials for advanced (nano)electronic components and systems (RIA)**

- **HORIZON-CL4-2022-RESILIENCE-01-12: Functional multi-material components and structures (RIA)**
- **HORIZON-CL4-2022-RESILIENCE-01-14: Membranes for gas separations - membrane distillation (IA)**
- **HORIZON-CL4-2022-RESILIENCE-01-23: Safe- and sustainable-by-design organic and hybrid coatings (RIA)**

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TUBITAK MAM
Institute of Chemical Technology
Turkey
+902626773889
tuba.bedri@tubitak.gov.tr
www.mam.gov.tr