

# Triboelectric Bioactive 3D-Nanofibrous Bandage for healing deep Wounds

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ZENIT 

Successful R & I in Europe 2025

12th European Networking Event

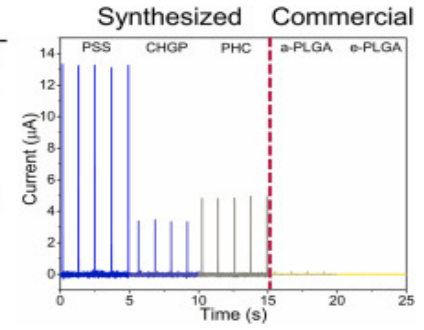
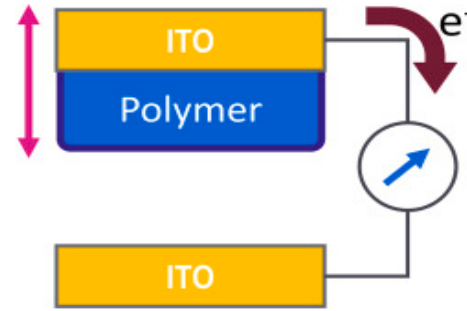
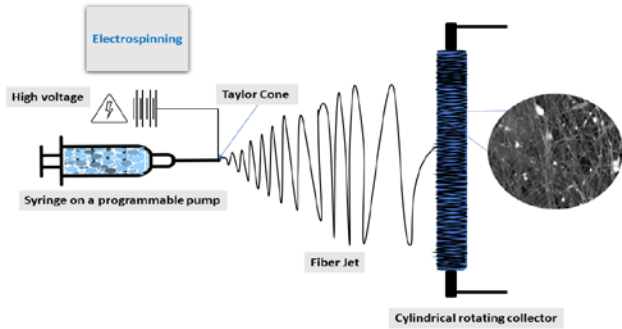


# RECENT Successful story

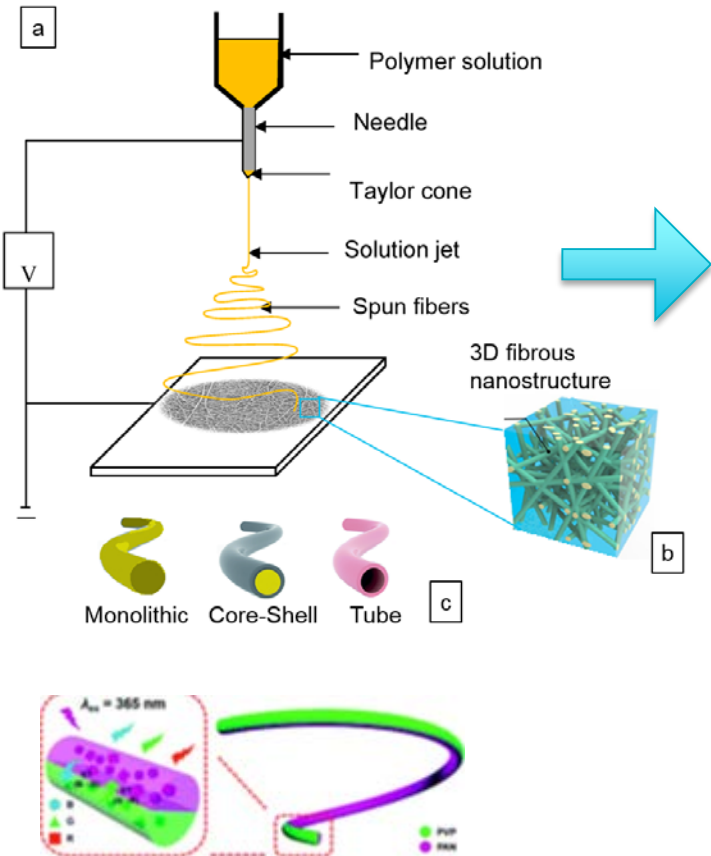
## Triboelectric Nanogenerators (BIOTENG)



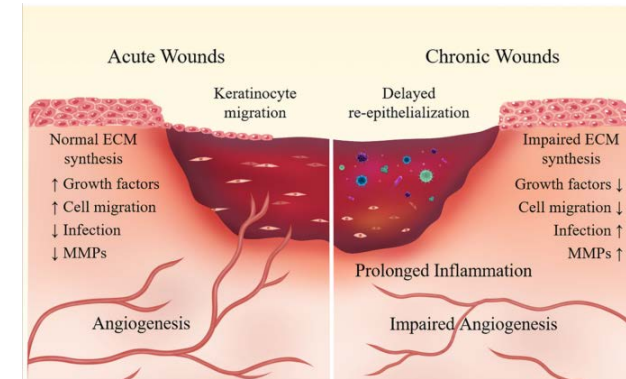
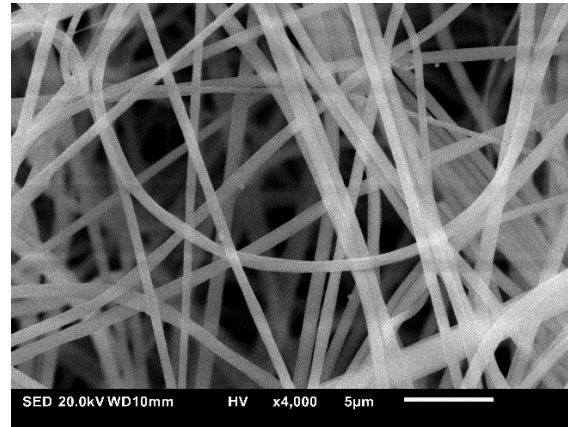
M-era.Net



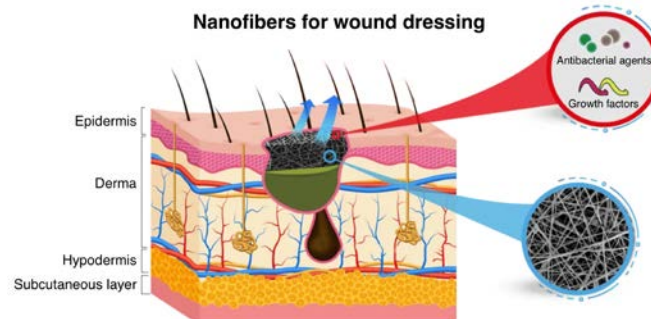
## Electrospinning



## Topics for future Horizon Europe projects



## CHRONIC WOUND



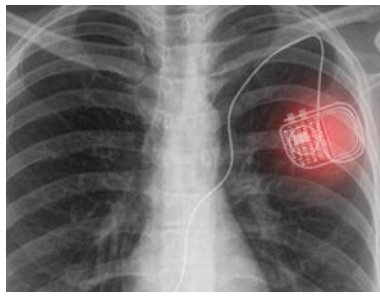
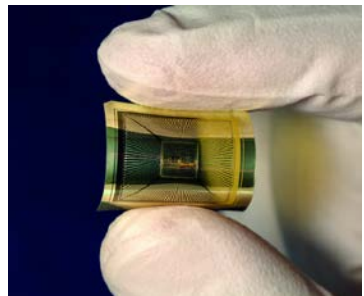
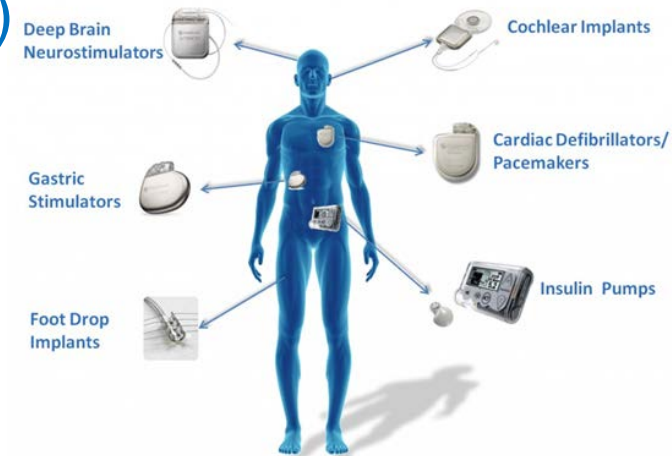
# EXPLOR AREA OF RESEARCH: HORIZON-IA

## Innovation Actions “Powering Small Implants Devices”

Horizon Europe Call : RESILIENT VALUE CHAINS 2024 (HORIZON-CL4-2024-RESILIENCE-01-TWO-STAGE)

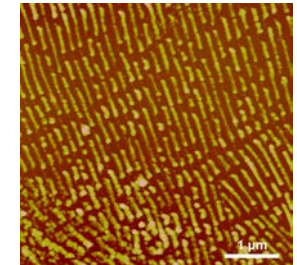
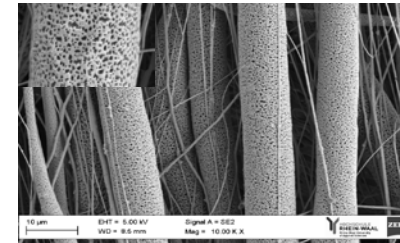
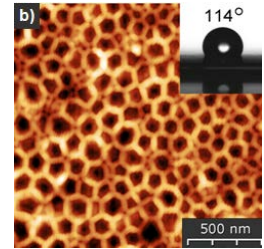
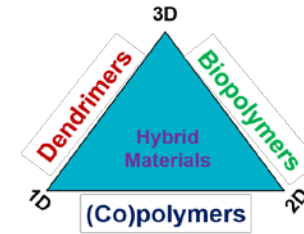
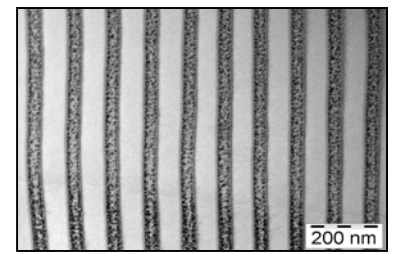
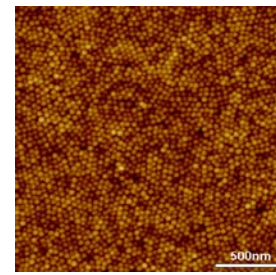
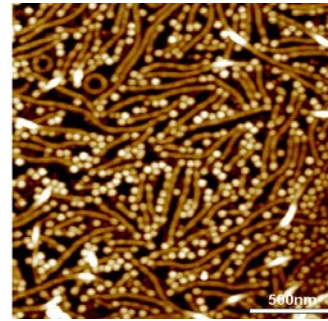
**We offer:** Design, Fabrication and characterization of different types of nanostructured hybrid biomaterials at different dimension and length scales includes:

- ❖ Different types of nanoparticles (metallic, oxides and Semiconductors)
- ❖ Varieties of electrospinning hybrid nanofibers in 2D and 3D structures
- ❖ Characterization instruments includes
- ❖ Spectroscopy (UV-Vis, FTIR and Fluorescence)
- ❖ Thermal analysis (TGA and DSC)
- ❖ Microscopy (SEM and AFM)
- ❖ Rheology

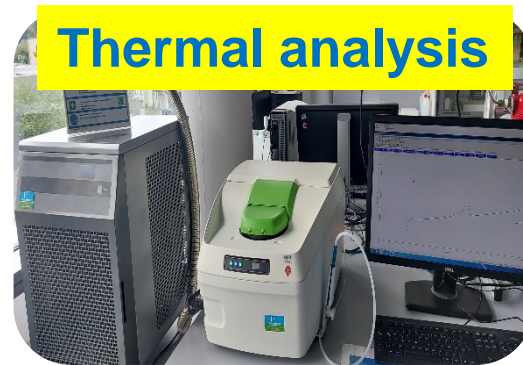


# Scientific and technological expertise in EU-Projects

- Nanoshield (DEFENCE-EU)
- BIOTENG (ENERGY-ERA-NET)
- MINRVA (CANCER- ERA-NET)
- HYNANODEND (HEALTH-EU)
- IP-OSTEO (EU-Horzion 2020-RICE)
- FABIOCOM (ENVIRONMENT-ENRGY)



Rheology



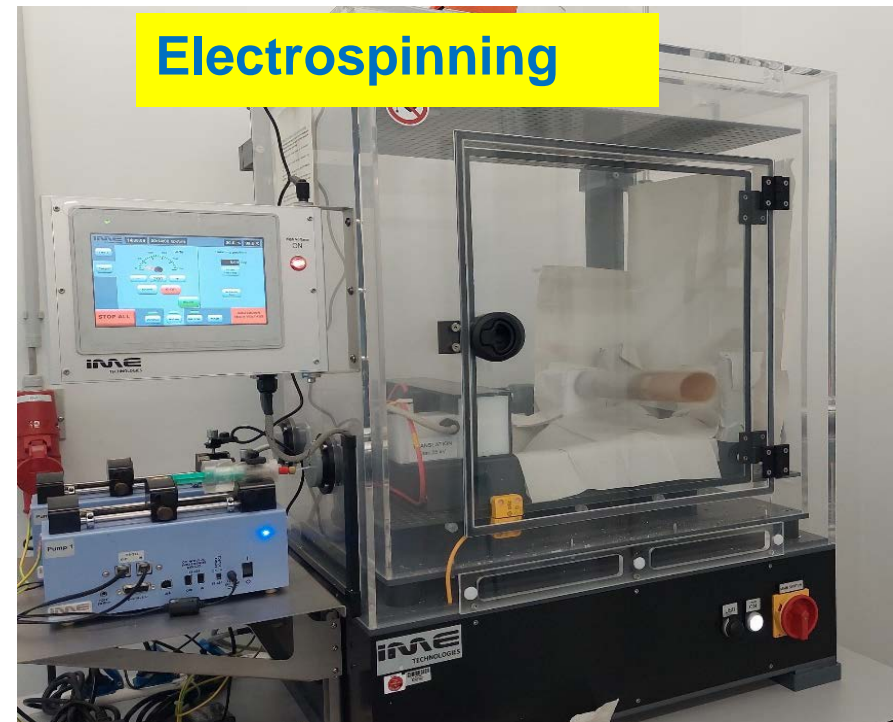
Thermal analysis



Spectroscopy



Microscopy



Electrospinning

# Application fields

- **Biomaterials (scaffolds for implants)**
- **Environments (Hybrid Membranes Decontamination of hazardous substances from liquid, solid and gas).**
- **Energy harvesting and nanogenerators**
- **Battery Technology**
- **Smart Materials, textiles and packaging**
- **Nanoelectronic and optoelectronic applications**
- **Catalysts for hydrogenation**

## **We looking for partners (Research institutions and universities)**

- **Biological testing in-vitro cytotoxicity test and cell adhesion.**
- **Laboratory experienced in Triboelectric and Piezoelectric devices**
- **Research groups in polymers chemistry (Biopolymers and dendrimers)**
- **Laboratory for sensors parts of medical devices**
- **Modeling and simulation of functional hybrid materials**
- **Industrial partners (companies for scaling up)**

# Thanks For Your Attention

## and

# ZENIT For the Kind INVITATION



Ministerium für  
Kultur und Wissenschaft  
des Landes Nordrhein-Westfalen

