



#InvestEUresearch

# Horizon 2020 Work Programme for Research & Innovation 2018-2020

EMRS Event  
Strasbourg 20th June 2018

**Workshop:** Europe in Motion-EUMAT Session  
Time: 13:45-16:10  
Proponent: UNINOVA  
Proposal title: Fiber based energy harvesting

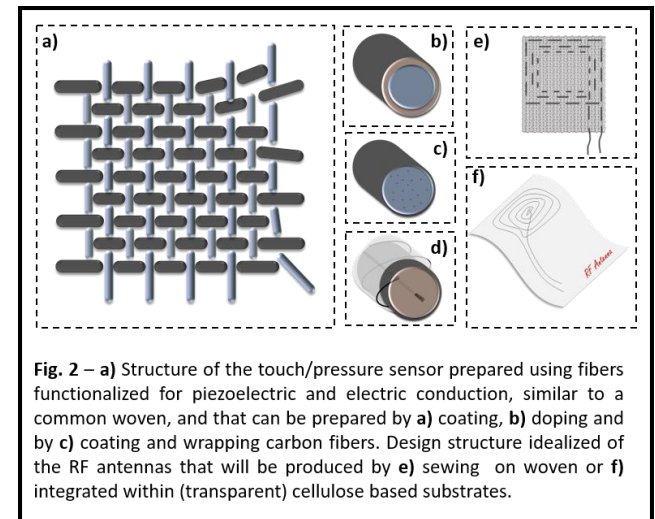
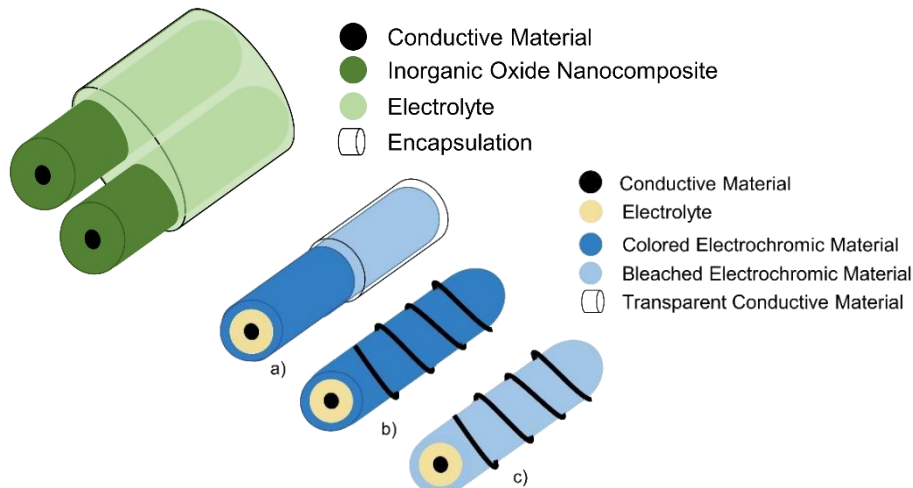
DG Research & Innovation

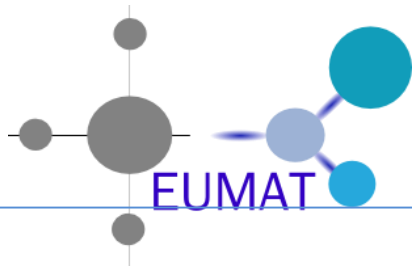
Research and  
Innovation

# Fiber based energy harvesting

- **Goal: Fiber based nanocomposites, functionalized to be either electric conductor, piezoelectric and electrochemically active. They will be combined and integrated in textile, paper like cellulose matrices and biocompatible elastomers, embroidering or weaving to construct energy harvesting systems and sensors for wearables and flexible electronics.**

- fiber like nanocomposites production by growing/depositing on their surface the piezoelectric materials, that will be either inorganic or hybrids ones (PVDF+inorganics)
- Explore the use of carbon fibers as conductive core/electrode in energy storage fibers
- Functionalized carbon fibers (with NPs of titanium oxide ( $TiO_x$ ), Manganese oxide ( $MnO_2$ ) tin oxide ( $SnO_x$ ) or vanadium oxide ( $V_xO_y$ ) for electrochemical active elements





# Fiber based energy harvesting

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- **Outcomes:**

- - **new materials** for fo conductive, piezoelectric and electrochemical active fibers **abundantly available elements.**
  - advanced **synthesis and processing** routes for the production of these materials, using innovative but consolidated techniques
  - innovative **approaches** for energy harvester generations and capacitive/pseudocapacitive storage applications
  - Electrochromic fibers

- **Partners already identified:**

UNL, Arkema, POLITO, U. Bordeaux, FISIFE.....

- **Wanted additional partners :**

Others with the expertise identified above and some partners on standardization and safety issues, compliance to EU/National legislation vs the targeted market