PARTNER SEARCH -

To develop technologies for sustainable stationary energy storage, based on secondary raw materials, eco-friendly operations and circular economy principles

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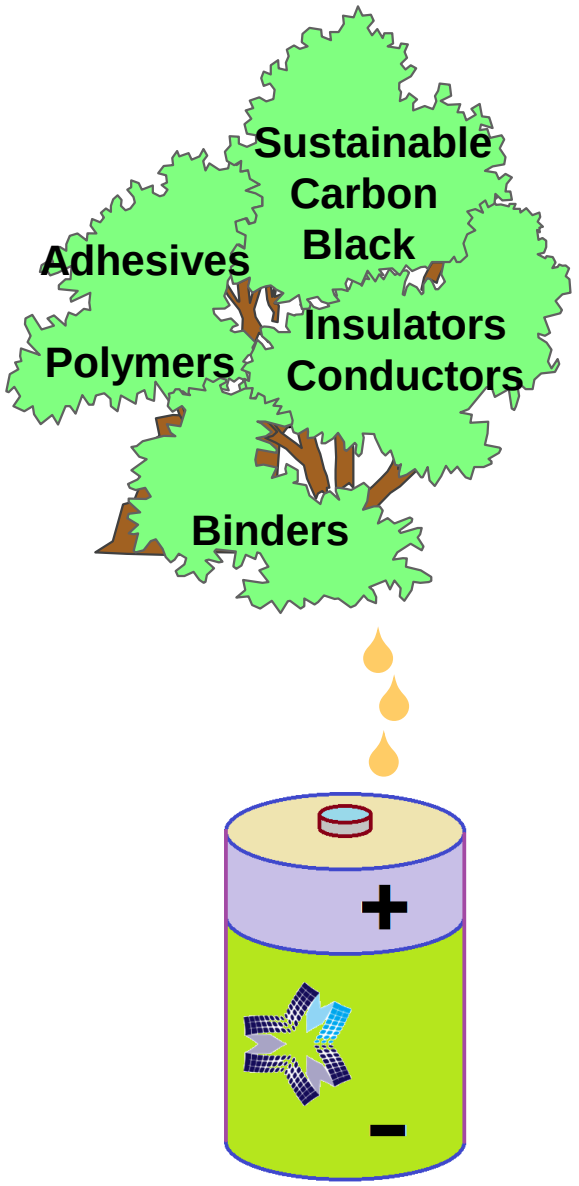

Areas of interest

- Challenges of electrical storage development, being solved @FTMC:
  - Safe, sustainable and low cost Li-ion or aqueous Na-ion batteries
  - Photoelectrochemical catalysts and systems for (sea)water splitting
- Challenges to produce adhesives, binders etc., solved @FTMC:
  - From Biomass/biogas-To-Liquid (sugars, lignin, cellulosic derivatives, biomethane, Fischer-Tropsch, etc.)
  - From Waste-To-Liquid (plastics, old tires, lube drains, etc.)
  - From glycerol utilization, Valorization of Fatty Acid Methyl Esters, etc.
  - From sustainable oils, produced from non-food crops, tree oils, waste oils, algae (i.e. algal oils), yeast, microbial processes, insect larva, etc.
  - From recycled tires, plastic, multilayer films, etc.

Looking for

partners or consortia, focusing on generation / recovery / sustainable production / applications of:

- Eco-friendly / recyclable / degradable polymers & elastomers suitable as battery and (photo)electrolyzer active electrode materials, electrode and electrolyte binders, current collectors, casing materials.
- Carbon black and graphite as electrode components or low cost current collectors (i.e. as polymer composites)

Experience

FTMC Dept. of Chemical Engineering & Technologies

- Electrochemistry, material science, degradation analysis, polymer recycling
- Spectroscopy (XPS, XRD) microscopy (SEM, TEM) chromatography, tribology, etc.
- Focus: **Sustainable Electrochemical Energy** Technologies
- **Aqueous batteries** for stationary storage (project *AquaCell*)
- Photoelectrochemical generation of **green H_2** (M-Era.Net project *CatWatSplit*)
- **Secondary** Raw Materials – often **1 g is enough** to assess feasibility!
- Converting oil products into **lubricants** & **plasticizers** (H2020 project COSMOS)
- Recycling of **multilayer plastic** films, develop **adhesives** (H2020 project TERMINUS)
- Devulcanizing **rubber** from End-of-Life Tires (project !9964 OzoRubber)
- **Industrial applications** for **fluids** from green chemistry synthesis, bio-synthesis, non-food oils, oleochemicals, ionic liquids, deep eutectic solvents, etc.

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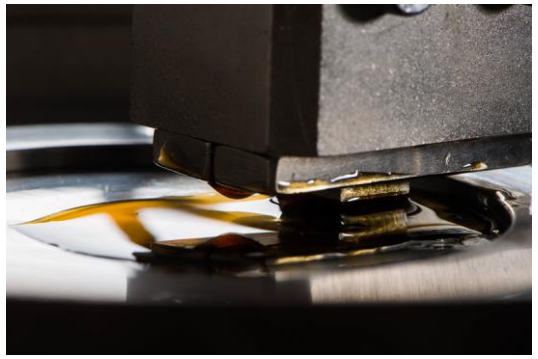
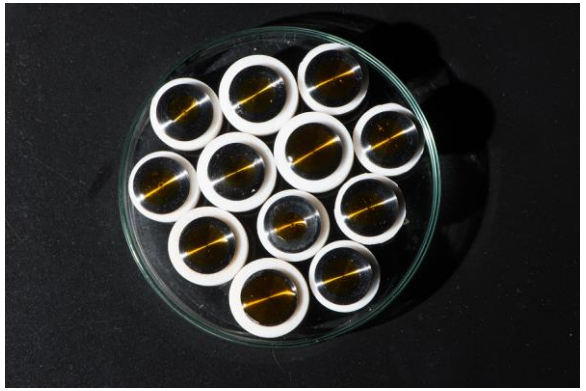


COSMOS
ADDING VALUE TO CAMELINA AND CRAMBE OIL

TERMINUS



Impact

A number of spinoffs from Dep. of Chemical Engineering & Technologies will rely on this research advancement. They are ready to contribute to the future collaborative projects (various TRL levels).

Battery spinoff

Rubber recycling spinoffs

Electrochemical spinoff

Possible contribution

Our major strength - evaluation of small research samples:

- Capability to assess industrial feasibility for lubricants, plasticizers and adhesives from research samples of small volumes
- Complete lab-scale assembly and testing of various format cells

Viable Horizon Europe (or other programmes) areas: Food, Bioeconomy, Natural Resources, Agriculture and Environment

FTMC has experience in coordinating and participating in H2020 projects.
We are interested to join consortia as a partner and would be ready to contribute as WP leaders.

More info about FTMC

CENTER FOR PHYSICAL SCIENCES AND TECHNOLOGY

FTMC (CENTER FOR PHYSICAL SCIENCES AND TECHNOLOGY) is the largest institution for applied research in Lithuania carrying out unique technological developments in the fields of:

- laser technologies
- optoelectronics
- nuclear physics
- chemical technologies
- bio and nanotechnologies
- electrochemical material science
- functional materials, electronics, etc.

We are looking forward to new collaborations!

https://www.ftmc.lt/en

FTMC is also the largest RTO in the Baltic States and a member of EARTO

- 4 institutes: Chemistry, Physics, Semiconductors & Textile
- 5 campuses (Vilnius & Kaunas) plus 2 affiliated research parks
- Budget over €20M, governmental funding below 40%
- ~ 700 employees, over 300 Dr researchers & over 100 PhD students