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LABORATORY OF CHEMICAL TECHNOLOGY (LCT)



LATVIJAS UNIVERSITĀTES
CIETVIELU FIZIKAS INSTITŪTS

INSTITUTE OF SOLID STATE PHYSICS
UNIVERSITY OF LATVIA

Lab. Leader Dr. chem. Assoc.Prof. Guntars
Vaivars



KEYWORDS: SULFONATED POLYETHER ETHER KETONE (SPEEK); PROTON CONDUCTING MEMBRANES; ION CONDUCTING MEMBRANES; IONIC LIQUIDS; INORGANIC NANOPARTICLES.

Active researchers: Guntars Vaivars, Einārs Sprūģis.

Active research:

- SPEEK/ ionic liquid composites for sodium-ion batteries (Fundamental and applied research project of the Latvian Council of Science, Nr. lzp-2020/1-0391).
- SPEEK/ ionic liquid composites as anion exchange membranes for CO₂ electroreduction (CO2EXIDE, H2020-IND-CE-2016-17).

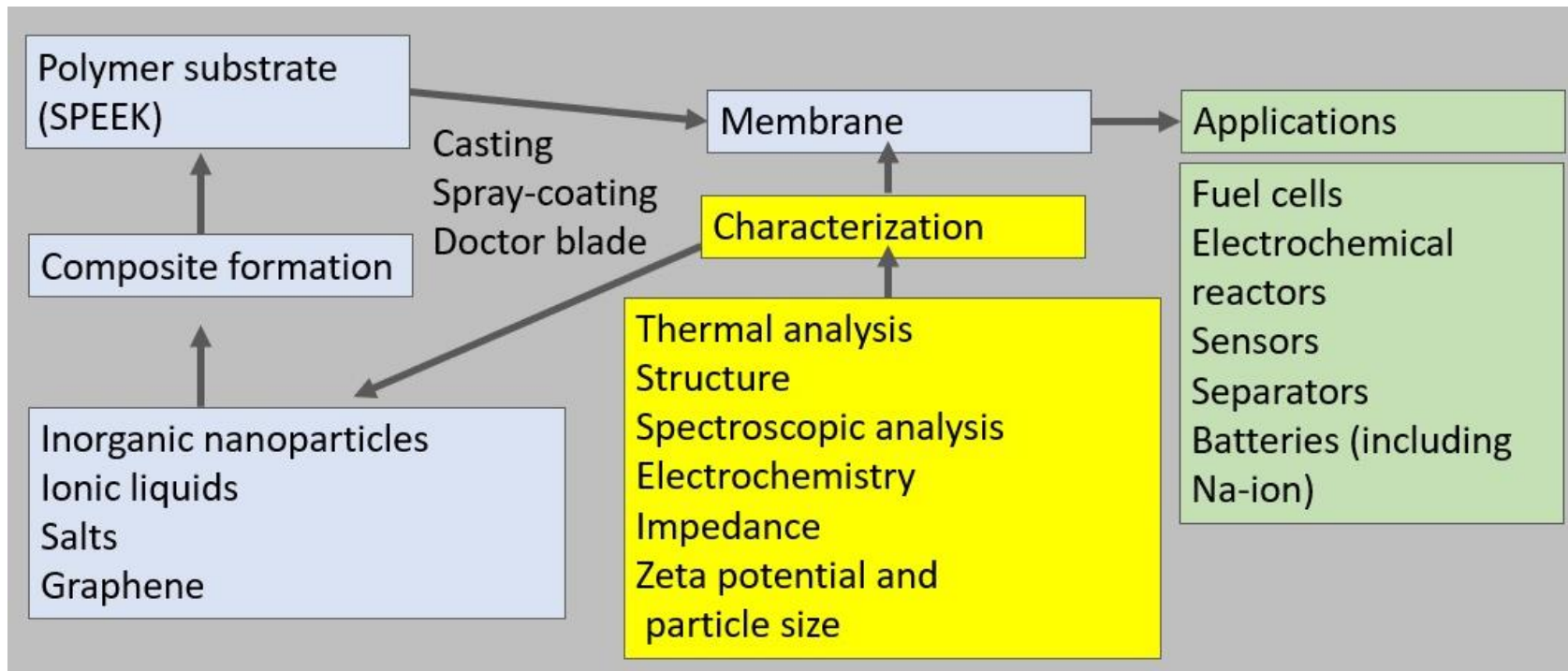


LCT IS FACILITY PROVIDING MATERIAL BASE FOT MATERIAL SYNTHESIS AND CHARACTERIZING. CURRENTLY IT CONSISTS OF 7 ROOMS:

- Materials for solid state ionics (membranes, nanoparticles). Synthesis and characterization. Supervising G.Vaivars.
- Furnace rooms (2) for high temperature synthesis.
- Anhydrous synthesis (synthesis and characterisation of materials for lithium un sodium batteries). Supervising G.Vaivars, G.Kučinskis.
- Chemistry room (currently synthesis of ferroelectrics). Supervising Ē.Birks.
- Technical treatment of materials (polishing, pressing, grinding).
- Synthesis room (currently fluoride nanoparticle synthesis).



RESEARCH INTEREST



ANHYDROUS SYNTHESIS (SYNTHESIS AND CHARACTERISATION OF MATERIALS FOR LITHIUM UN SODIUM BATTERIES)



- MBraun glove-box
- Vacuum furnace
- Equipped chemistry lab
- Electrochemistry equipment





THERMAL ANALYSIS COUPLED WITH GAS ANALYSIS

SETARAM differential scanning calorimetry (DSC)/thermal gravimetry (TG), LABSYS Evo, DSC 131 EVO

- room temperature to 1 600 °C
- DSC rod – Resolution: 0.4 μ W / 10 μ W dependent on sensor.

Coupled with:

IS Spectrometer IRTracer-100 Shimadzu

Gas chromatography:

- 1) GC GCMS QP2020 NX W/O RP 230V
- 2) Pyrolyzer CDS 5200HPR
- 3) MS detector.





THANK YOU



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