Short Biography:

Assoc. Prof. Dr. Brigita Abakevičienė holds a PhD in Applied Physics and Materials Science from Kaunas University of Technology (Lithuania) and Poitiers University (France). She works as a Senior Researcher at the Institute of Materials Science, focusing on the hydrogen fuel cells and preparation of nanocomposite coatings for antimicrobial/antiviral application. As University representative, she was elected a Deputy Chairwomen of the CERN Baltic Group in April 2022 and Chairwomen of the CERN Baltic Group in 2024.

Scientific research is carried out in the fields of **Materials Engineering** and **Physics**. The research conducted in these areas falls under the R&D&I activity direction **"Technologies for a Sustainable Future"**, related to **Functional Materials and Technologies**, and focuses on **nanotechnology** and **alternative hydrogen energy** topics. Research in this area includes the development of new technological processes, the creation of new materials, the application of research methodologies, and the use of nanotechnology in hydrogen production, storage, and transfer processes to improve the efficiency of hydrogen energy systems.

1. **In the field of alternative energy:** studies are conducted on the interaction of solid oxide fuel cell electrodes with materials, the influence of phase composition on the electrical properties of materials, and the surface and morphology characteristics of thin coatings. Chemical synthesis methods (photochemical synthesis, precursor deposition, calcination, sol-gel processes) are applied to form structures of metal and metal oxide nanoparticles and nanoceramics. (Includes a completed postdoctoral fellowship, supervision of PhD students, and implementation of an international Lithuania–Poland project).
2. **Search and investigation of new nanocomposite materials:** development and evaluation of complex silver nanoparticles in polymers (using X-ray diffraction, microscopy, optical spectroscopy, and probe methods), assessment and application of the plasmonic effect for renewable energy. Modelling of the dependence of nanocomposite physical properties on the concentration and particle size of embedded metals, metal oxides, or organic biocides in the organic polymer matrix. Formation of antimicrobial, superhydrophilic/hydrophobic organic nanocomposite coatings and evaluation of coating aging processes (supervisor of PhD student).
3. **Evaluation of the physical, chemical, and mechanical properties** of scaffolds and trabecular structures formed by **additive manufacturing (3D printing technologies)** from metal alloys and calcium phosphates. This research is conducted in collaboration with business representatives and CERN scientists.

Details:

Organization/University: Kaunas University of Technology
City, State, Country: Kaunas, Lithuania
Telephone Number: +37068607546
Email: brigita.abakeviciene@ktu.lt
ORCID: https://orcid.org/0000-0002-4359-7287