1. Synthesis of multication oxide glasses and their mechanical properties.

2. Cold sintering of bioactive glasses.

3. Overcoming glass brittleness by paracrystallization.

4. Preparation and characterization of luminescent glass-ceramic materials prepared by sintering in a viscous flow.

5. Enhancing the Utility of Silicon-Based Composites with Cerium Oxide Nanoparticles for Cancer Treatment and Tissue Engineering.

6. Preparation of *in-house* reference materials for analysis of strategic raw materials.

7. Development and processing of MOX-hybrid structures for efficient photocatalytic materials.

8. Increasing the conversion during dry reforming of methane via PLASMA CATalysis: Turning greenhouse gases into value-added products.

9. Development of negative thermal quenching luminescent thermometers for temperature sensing.

10. 3D printed composites using wide-bandgap semiconductors for photocatalytic decomposition of pollutants in waste water.

11. Transparent ceramics with multi-wavelength excitation and emission properties.

12. Covalently functionalized nanoparticles with photosensitizers for photodynamic therapy application.

13. Bioactive oxynitride glasses for biomedical applications.

14. Advanced Bone-mimicking Bioactive Glass Scaffolds Infused with Therapeutic Ions and Nanoparticles for bone regeneration.

15. Multifunctional biopolymer-based structures enriched with ion-doped mesoporous silica composites for biomedical applications.

16. New and Modern Thermal barrier coatings based on high entropy ceramic oxides.

17. Development of multifunctional thin multi-layer films on glass substrates using Hybrid PVD-PECVD.

18. Enhancing optical properties through antireflective superhydrophobic coatings prepared by PVD and PECVD techniques.

19. Development of photoactive/conductive oxide electrodes by additive manufacturing techniques for photo/electrocatalytic reactions.

20. Innovative approaches to upcycling waste glass with binder jetting 3D printing for sustainable material solutions.

21. Advanced multi-material structures by AMTs for future applications in the biomedical sector.

22. Innovative decarbonization pathway in the glass industry by selective batching.