



Międzynarodowa Środowiskowa Szkoła Doktorska
przy Centrum Studiów Polarnych
w Uniwersytecie Śląskim w Katowicach

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No. of PhD project: IEDS/2023/US/06

Title of PhD project: *Influence of calcium and strontium ions admixtures on the application properties of BaTiO₃ ceramics*

The leading unit: Institute of Materials Engineering University of Silesia in Katowice (IIM UŚ), Chorzów

Requirements:

1. Completed second-cycle studies (Master's degree) in the field of Materials Science or similar. Knowledge of research topics related to the synthesis and study of the ceramics material.
2. Knowledge of issues related to the properties of ceramic materials, typical tools and methods used in the analysis of this type of materials.
3. Knowledge of the English language enabling communication, reading scientific papers and writing them.

Tasks description:

1. Acquisition, processing and analysis of available literature and the latest available publications on the subject of the project.
2. Preparation of ceramic materials based on barium titanate doped with calcium and strontium ions.
3. Conducting research in cooperation with the parent research team.
4. Preparation of scientific articles and conference presentations.
5. Regular progress reports.
6. Help in everyday scientific and didactic tasks of the unit.

Abstract:

Based ceramics - barium titanate belongs to the group of environmentally safe, lead-free perovskite materials. This material has been studied for years for potential applications in high-capacity supercapacitors, as well as in piezo and pyroelectric sensors. This work fits very well with the existing research trends, because its purpose is, among other things, to investigate the influence of the admixture of calcium and strontium ions on the above-mentioned properties.



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Other information:

The work will be carried out under supervision of: dr hab. Małgorzata Adamczyk-Habrajska, prof. UŚ, e-mail: malgorzata.adamczyk-habrajska@us.edu.pl, Institute of Materials Engineering, University of Silesia in Katowice and dr Jolanta Makowska, e-mail: jolanta.makowska@us.edu.pl Institute of Materials Engineering, University of Silesia in Katowice.

Secretary of the IEDS Recruitment Committee: +48 32 3689 380, e-mail: polarknow@us.edu.pl

Information on the IEDS admissions: https://www.mssd.us.edu.pl/en/admission_2023_2024-reg/