1 priedas

STUDENTŲ ĮTRAUKIMO Į MOKSLINĘ VEIKLĄ SKATININAMOJO KONKURSO TEMA

Theme: Study of the structural parameters of the force sensor based on hydrogel film
Main goal: to determine the influence of the composition of the hydrogel film used for the force sensor on the structural parameters of the force sensor.
Brief description of theme execution: Carrageenan hydrogel films are prepared by mixing the components and drying at room temperature. The prepared film when connected to the metal wires (electrodes) is laminated or insulated by other material and the main parameter studies are performed. For experimental investigation of various parameters available equipment: multimeter, tension/compression bench, oscilloscope. The aging of the hydrogel film will be evaluated by tests in time intervals. By participating in these studies, the **student will acquire the skills** to: During scientific activities, the student will acquire the skills of experiment planning and execution, materials science knowledge, and participation in scientific research activities. Management skills of working with software-controlled measuring devices: oscilloscope, multimeter, tension/compression bench; Good laboratory practice and work safety skills; Methods of studying mechanical and electromechanical properties of materials using available equipment; Oral presentation and poster presentation skills at scientific conferences. **Minimum requirements for student:** There are no special knowledge and skill requirements for the student himself. The student will conduct research based on basic knowledge of computer literacy and physics. The student will be trained on the spot according to the emerging needs. **Methodology of the work:** physicochemical tests will be carried out in order to create a carrageenan hydrogel film with a composition that would have stable parameters required for a force sensor. The student will be able to examine the physical and mechanical parameters of the material using a multimeter, a software-controlled oscilloscope, and a stretching/compression system. The student will also be able to study the quality of the contact between the carrageenan film and the electrodes to be connected and to solve the issues of improving the quality of the contact. **Info about materials:** All materials proposed for this study are abundant in nature, safe for the worker and cheap. The carrageenan proposed for this work is extracted from seaweed, the excess of which on the coast of the Baltic Sea causes biological pollution and an ecological problem. Therefore, more active use of seaweed would also have an indirect environmental impact. Like all hydrogels, carrageenan biopolymer exhibits a certain instability characteristic of hydrogels. This is aging, biodegradable.
Temą siūlantis mokslininkas/dėstytojas: senior researcher Jurate Jolanta Petroniene