

Development of mechanoluminescent thin films for real time stress detectors

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I N V E S T I N G I N Y O U R F U T U R E

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Project partner: Sidrabe Vacuum Ltd, B.A.Sc. Matiss Piesins.

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About project implementation (01.10.2021 – 31.12.2021)

During the research period of project No.1.1.1.1 / 20 / A / 138 “Development of mechanoluminescent thin films for real-time stress detectors”, the adaption of laboratory equipment for planned technological research was continued.

Based on the feedback from the coated sample studies from LU CFI, ion-gun treated and untreated substrate samples were prepared. Coatings were applied to variously pretreated substrates to find better adhesion of the functional mechanical luminescent thin films. The optimal thickness of coatings was determined for further research.

Experimental studies with variable coating process parameters were performed to improve the crystallinity of functional mechanical luminescent thin films. Coating series were produced by varying the pressure, coating power, and distance between the sample substrate and the sputtering source target to find a combination with improved performance or to establish the direction for further work.

Coatings were also applied to substrates of various thicknesses to investigate the detectability of the mechanical luminescence phenomena.