

# POZNAN UNIVERSITY OF TECHNOLOGY DOCTORAL SCHOOL



## The result of the mid-term assessment together with the justification Wynik oceny śródkresowej wraz z uzasadnieniem



for the period 01.10.2020 to 31.08.2022

**Maria Wiśniewska**

the doctoral student at PUT Doctoral School / doktorant Szkoły Doktorskiej PP

discipline of science / dyscyplina naukowa: **inżynieria materiałowa / materials engineering**

### The result of assessment / Wynik oceny

Positive / Pozytywna*	Negative / Negatywna*
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### Justification / Uzasadnienie

The final assessment of doctoral student is **positive** due to Miss Maria Stefania Wiśniewska achievements in research, activities in results dissemination and other organizational activities, which are as follows:

1. Scientific report delivered by M.Sc. M.S. Wiśniewska in the parts 2&3 proves that realization of her IRP is appropriately advanced to the time used for its realization and it is estimated as about 50%. The aim of research is very ambitious – the development of a material and technology route for the production of monolithic heat shields with a low thermal conductivity coefficient that can be used in new capsules and spacecraft. The obtained results indicate that the conducted research allowed to do all expected outcomes for the first two years of doctoral study. The investigations realized so far allowed to indicate the best chemical composition for zirconia-based composite as a partially stabilized zirconia with 10 vol. % content of the multi-wall carbon nanotubes - MWCNTs (3YSZ-10vol%MWCNTs). The best method to obtain the homogenous distribution of MWCNT in that composite was applied ultrasound mixing. Parameters of the sintering process (temperature, compaction pressure, heating rate, and dwell time) were determined. Commission agree that declared by PhD student collecting literature and analyses of current state of the art, development of the methodology for manufacturing samples, and development of the current results make up together about 50% of the IRP realization.

2. Scientific achievements reported in the Part 4<sup>th</sup> and other activities directly related to implementation within doctoral dissertation were also positively assessed as Miss M.S. Wiśniewska is the first co-author of 2 articles and co-author of the third one published in the international and national conferences materials. She has also given 2 talks during these conferences. She also successfully realized 3-months internship at The USA at San Diego State University. Miss M.S. Wiśniewska has applied to The National Centre for Research and Development, Small Grant Scheme 2020 Call. The project title was "Optimization of the energy consumption in the SPS process by modifying the design of the tools and the applied thermal insulation (Eco-SPS) with the role of principal investigator.

Her Presentation of Achievements was very well prepared and delivered, and answers to all questions satisfied all members of the Commission.

On behalf of the Commission / Za Komisję

September 12<sup>th</sup>, 2022

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Date

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Legible signature of Head of Commission

\* delete as appropriate / niepotrzebne skreślić