Report on the outcomes of a Short-Term Scientific Mission[[1]](#footnote-1)

Action number: CA18232

Grantee name: Prof. Sergii Favorov

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| **Details of the STSM**  Title: Almost Periodic Functions and Spectra of Metric Graphs.  Start and end date: 21/04/2022 to 19/05/2022 |
| **Description of the work carried out during the STSM**  *Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section (max. 500 words)* |
| During my visit to Stockholm University, I introduced the mathematicians of this university researches of the Kharkov School of Mathematics on analytic and entire functions, as well as my research on almost periodic objects - holomorphic functions and their zeros, almost periodic measures and distributions, in particular, on quasicrystals and temperate distributions with discrete support and spectrum in multidimensional space. At the same time, I got acquainted with the research of the Stockholm School of Mathematics in the field of metric theory of graphs and networks. We considered the possibilities of using almost periodic objects in the theory of metric graphs and networks and outlined ways for further cooperation, established links between the mathematical schools of Kharkov and Stockholm.  Based on the results of the discussions, I prepared a paper "Fourier quasicrystals and distributions on Euclidean spaces with spectrum of bounded density" in which new properties of almost periodic measures and distributions in multidimensional Euclidean space are considered. It is planned that this article will be published in an international mathematical journal. Additionally, these results will be reported at the conference "Operators, Functions, Systems: Classical and Modern" which will be held during the week 12.06-18.06.2022, at the Mathematical Conference Center in Bedlewo, Poland where I have already been invited. Both in the article and the report will be indicate that these investigates were carried out with the support of the COST grant.  All these studies are entirely in the field of the Action and thus are an important contribution to the scientific objectives of the Action. |
| **Description of the STSM main achievements and planned follow-up activities**  *Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section. (max. 500 words)*  During my visit to Stockholm University, I introduced the mathematicians of this university to the research of the Kharkov School of Mathematics on analytic and entire functions, as well as my research on almost periodic objects - holomorphic functions and their zeros, almost periodic measures and distributions, in particular, on quasicrystals and temperate distributions with discrete support and spectrum in multidimensional space. At the same time, I got acquainted with the research of the Stockholm School of Mathematics in the field of metric theory of graphs and networks. We considered the possibilities of using almost periodic objects in the theory of metric graphs and networks and outlined ways for further cooperation, established links between the mathematical schools of Kharkov and Stockholm.  Based on the results of the discussions, I prepared a paper "Fourier quasicrystals and distributions on Euclidean spaces with spectrum of bounded density" in which new properties of almost periodic measures and distributions in multidimensional Euclidean space are considered. This article will be published in an international mathematical journal.  All these researches lie fully in the area of research of the Action and thus are an important contribution to the scientific objectives of the Action. |

1. [↑](#footnote-ref-1)