



Dissemination/Communication Report

Project title: “Environmental effects on physical properties of smart composites and FRP modified by carbonaceous nanofillers for structural applications”.

Project No. 1.1.1.2/VIAA/1/16/066.

Period concerning this report: 01.01.2019-31.12.2019.

**Activity 1.1.1.2 “Post-doctoral Research Aid” of the Specific Aid
Objective 1.1.1 “To increase the research and innovative capacity of
scientific institutions of Latvia and the ability to attract external
financing, investing in human resources and infrastructure” of the
Operational Programme “Growth and Employment”.**

Summary

During the second year of the project implementation different dissemination/communication activities were carried out.

The scientific results of the project were presented on two conferences *ICSAAM 2019*, September 12-15, 2019 (Ischia, Italy) and *DFMN 2019*, November 19-22, 2019 (Moscow, Russia). Based on the conference presentation two conference full papers were prepared and submitted for the publication in conference proceedings having open access and indexed in Scopus. One scientific publication was published in the special issue of *Polymers* (Q1 open access journal, IF 3.2). For the dissemination of information among general public professional *FACEBOOK* profile was regularly updated with press releases regarding the project activities. The project profile “Environmental effects on physical properties of smart composites and fibre-reinforced plastics modified by carbonaceous nanofillers for structural applications” was updated with annual reports at open-access database *ZENODO* (www.zenodo.org) under community POSTDOC-Latvia providing open-access to all published materials. Both profiles will be also regularly updated with actual project results during the last year of project implementation.

1. Objectives

- Dissemination of results;
- Communication;
- Knowledge and data management and protection.

2. Work planned for this reporting period

T4.1. Dissemination of results

- Preparation of dissemination materials and publishing quarter press releases in the website of the University of Latvia (UL, www.lu.lv).
- Making 1 conference report.
- Self-activation within institutional repositories and subject-based repository (*ResearchGate*).

T4.2. Communication

- Implementation of the communication plan.
- Attendance of local seminars, conferences, and other public events (e.g. *Researchers' night*, *Scientific café*), posters display and leaflet distributions.

T4.3. Knowledge and data management and protection

- Transfer of generated data to the central database (e.g. *Dropbox*), and its preservation for at least five years after completion of the project.

3. Progress

T4.1. Dissemination of results

During the second year of project implementation 4 quarter press releases (#5-8) were prepared and published in the website of UL (<https://www.lu.lv/zinatne/programmas->

[un-projekti/es-strukturfondi/1112pasakums-pecdoktoranturas-petniecibas-atbalsts/vides-ietekme-uz-viedo-ar-oglekla-nanopildvielam-modificetu-kompozitu-un-skiedru-plastikatu-fizikalajam-ipasibam-strukturaliem-pielietojumiem/](#)).

Current project results were discussed in two international scientific conferences *ICSAAM 2019*, September 12-15, 2019 (Ischia, Italy) and *DFMN 2019*, November 19-22, 2019 (Moscow, Russia). According conference full papers were prepared and accepted for the publication by *American Institute of Physics-Conference Proceedings (AIP)* and *IOP Conference Series: Materials Science and Engineering*.

In the synergy with project activities two conference reports were done in collaboration with colleagues from Riga Stradins University (RSU) at *RSU Scientific Conference*, April 1-3, 2019 (Riga, Latvia) and *Medical Physics in the Baltic States 14*, November 7-9, 2019 (Kaunas, Lithuania).

Based on the project results one scientific paper was published in Q1 scientific journal having open access (*Polymers*).

For the dissemination of project results among general public one popular scientific publication (in Latvian with a summary in English) was published in the journal "Alma Mater" by the University of Latvia based on the project idea and activities.

For the same purpose a professional *FACEBOOK* profile was updated with 11 press releases (<https://www.facebook.com/tatjana.glaskovakuzmina>) on the project activities. The profile will be also regularly updated with the actual project information/results.

T4.2. Communication

According to dissemination/communication plan (D4.1, M12) developed during the first year of project implementation certain dissemination/communication activities were carried out.

During the second year of project implementation seminars organized by State Education Development Agency of the Republic of Latvia (www.viaa.gov.lv) were attended for better project implementation and preparation of project reports.

Popular scientific seminar was carried out for the schoolchildren of the postdoctoral researcher's native school within the activity "Back to School" on May 2019.

The project activities were presented and discussed with wide audience at the *European Researchers' Night 2019*, demonstrating to all its visitors nonordinary adventures of ordinary materials, telling about the components and applications of smart composite materials, and showing the real test samples and products. The interview at Latvian Television was performed speaking about activities of the University of Latvia at *European Reserchers' night*.

Several presentations about the project and its current results were made for the progress seminars organized in Institute for Mechanics of Materials of UL (Riga, Latvia) and IPCB (Portici, Italy). 2nd year progress seminar for the discussion of current project results and future steps was organized in the Institute for Mechanics of Materials, UL.

During the second year of project two mobilities to IPCB (Portici, Italy) were carried out by the post-doctorate: 15.-22.06.2019 and 07.-17.09.2019. During these mobilities one set of epoxy and NC specimens and four basalt FRP plates were prepared, a

presentation at a progress seminar was performed, next project steps were planned, discussed and implemented.

Wide communication with international researchers discussing project results was carried out during *ICSAAM 2019* and *DFMN 2019* conferences.

T4.3. Knowledge and data management and protection

All data generated (raw and ready data files, reports, presentations) were transferred to the folder of POSTDOC project in the central database *Dropbox* providing access to scientific supervisor from UL Dr. Sc. Ing. Andrey Aniskevich and representative person of IPCB Dr. Sc. Ing. Mauro Zarrelli. All data files will be preserved in *Dropbox* during the project implementation and at least five years after completion of the project.

4. Significant results

Scientific publications

1. Glaskova-Kuzmina T., Aniskevich A., Sevchenko J., Borriello A., Zarrelli M. "Cyclic moisture sorption and its effects on the thermomechanical properties of epoxy and epoxy/MWCNT nanocomposite". *Polymers*, 2019, Vol. 11 (9), 1383, p. 1-14. DOI: 10.3390/polym11091383.
2. Glaskova-Kuzmina T., Aniskevich A., Sevchenko J., Zotti A., Borriello A., and Zarrelli M. Environmental effects on mechanical, thermophysical and electrical properties of epoxy resin filled with carbon nanofillers. *Proceedings of ICSAAM 2019 published by American Institute of Physics-Conference Proceedings*, September 12-15, 2019, Ischia, Italy (in press).
3. Glaskova-Kuzmina T., Aniskevich A., Zotti A., Borriello A. and Zarrelli M. "Flexural properties of the epoxy resin filled with single and hybrid carbon nanofillers". *IOP Conference Series: Materials Science and Engineering*, 2019 (in press).
4. Priladiša K., Siliņš J., Glaskova-Kuzmina T., Proskurins J., Bērziņa S., and Jaunuzola E. "Environmental ageing and its effect on compressive properties of dental composite". *Proceedings of International Conference Medical Physics 2019*, p. 105-108, November 7-9, 2019, Kaunas, Lithuania (in press).

Popular scientific publications

1. Tatjana Glaskova-Kuzmina. Perspektīvie materiāli un to stabilitāte pret ārējās vides faktoru iedarbību. *Alma Mater*, 2019, #3, Latvijas Universitāte (in Latvian with summary in English).

Presentations at international conferences

1. Priladiša K., Siliņš J., Glaskova-Kuzmina T., Proskurins J., Bērziņa S., and Jaunuzola E. Environmental effects on mechanical properties of dental composite. *RSU Scientific Conference*, April 1-3, 2019, Riga, Latvia.
2. Glaskova-Kuzmina T., Aniskevich A., Sevchenko J., Zotti A., Borriello A., and Zarrelli M. Environmental effects on mechanical, thermophysical and electrical

properties of epoxy resin filled with carbon nanofillers. *ICSAAM 2019*, September 12-15, 2019, Ischia, Italy. Book of abstracts, p. 11.

3. Glaskova-Kuzmina T., Aniskevich A., Zotti A., Borriello A., and Zarrelli M. Flexural properties of the epoxy resin filled with single and hybrid carbon nanofillers. *DFMN 2019*, November 19-22, 2019, Moscow, Russia. Book of abstracts, p. 350.

4. Priladiša K., Siliņš J., Glaskova-Kuzmina T., Proskurins J., Bērziņa S., and Jaunozola E. Environmental ageing and its effect on compressive properties of dental composite. *Medical Physics in the Baltic States 14*, November 7-9, 2019, Kaunas, Lithuania. Book of abstracts, p. 105-108.

5. Deviations from the working plan

Positive deviations from the working plan of dissemination/communication were obtained. It is expected that the number of conference presentations and submitted/published scientific papers written in project proposal (2 presentations and 2 scientific papers) will be higher maximizing the impact of the project.

6. Corrective actions

In the case of appropriateness and need, inclusion of all additional and relevant dissemination/communication activities within the project implementation and adding them to project work will be done improving the visibility of project results.

7. Plans for next reporting period (2020)

Submission of at least one scientific paper to peer-reviewed Q1 scientific journals and popular scientific paper in Latvian press is planned for the next year.

The scientific results obtained during the second year will be published in 2020 in peer-reviewed Q1 scientific journal (ensuring open access) with SCI higher than app. 1.15 (Material science, multidisciplinary) and included in the SCOPUS (A or B) databases. The draft version of the article will be prepared early in 2020 and will be discussed with scientific supervisor from the UL Dr. Sc. Ing. Andrey Aniskevich and representative person of collaboration partner Institute for Polymers, Composites and Biomaterials (IPCB) Dr. Sc. Ing. Mauro Zarrelli.

The scientific and public dissemination of the project will continue to be developed to achieve all planned objectives. The professional profile on *FACEBOOK* will be updated with the information on project results for general public. The open-access to project scientific results will be provided via self-archiving in *ZENODO* and *ResearchGate* repositories.

It is planned that project results will be presented in two international scientific conferences “*Advanced Problems in Mechanics*” in June 21-27, 2020 (Saint Petersburg, Russia) and *ICSAAM* in September 4-8, 2020 (Patras, Greece).

8. Deliverables and Milestones

D4.1 Annual dissemination/communication report (M12, **M24**, M36).