Host organisation: Technical University of Košice
Country: Slovakia
Organization role: Beneficiary
Project Acronym: NEWEX
Project start and end date: 01.2017 – 12.2020
Type of MSC action, H2020: RISE

Your story:

Project objectives and research field:
The aim of the project is the production of a new extruder with the concept of a special screw with rotating cylindrical segments, acquiring new experience and competence in the field of design of plasticizing systems of processing machines and preparing mixtures of composite and nanocomposite materials. The concept of rotational barrel segments was prepared for the solution of the project, special screw, CAD models were elaborated, boundary conditions and kinematic parameters were defined, models’ digitalisation, numerical analysis and optimisation of rotational barrel segments of different internal surface features and numerical analysis and optimisation of special screws of different geometric features were performed. The next objective of the project is the exchange of researchers from the institutions participating in the project, and hence the development of their professional careers and promotion of international and inter-sector cooperation between EU countries institutions.

Tell us why the topic is important and/or how it brings to advancement in your research field:
This area of development is concerned with a rotational barrel segment (RBS) rotating in the same or opposite direction as the screw. The rotational barrel segment, fitted with intensifying grooves of torsional angle and torsional direction, is a vital element of plasticising system of a new extruder developed in the framework of the NEWEX project and will be mounted in the metering zone. It is a complete novelty that has not been described in the literature or used in the existing extruders, except in some work developed by the team.

What are the benefits of participating in an MSC action?
This project is important for strengthening the research and didactic capacity of research staff, improving the skills and competences through the participation in trainings, workshops and seminars, increasing the mobility, transfer of knowledge and exchanging good practices between the particular partners who make the consortium (academic research centres as Lublin University of Technology, Technical University
of Kosice, University of Minho, and industrial organisations - Zamak-Mercator, SEZ-Krompachy a.s., Dirmeta UAB). Participants in the project share their knowledge, get to know modern technologies of manufacturing polymer composites by extrusion and injection moulding.

**Did you encounter any challenges during application/ implementation and did you get any help?**

We did not encounter any problems. Each member of the project works according to the work plan and had a contribution to the preparation of the NEWEX project. The University of Technology in Lublin and the Technical University in Košice had experience with an FP7 IRSES project.

**Would you recommend others to apply? What useful advice/ tips can you give them?**

We would recommend others to apply. It is important to have good relationships (especially personal ones) before submitting the project.

**What strategies did your organisation use to attract the fellow/s? Are they in line with national strategies supporting the widening EC policy?**

We met the project partners through ERASMUS projects and at international scientific conferences. The project partners work in the field of plastics processing - teaching, research and development. The topic of plastics processing is currently very topical because it involves many problems. Representatives of manufacturing companies were also present at international conferences. We consulted their problems, which they have especially in the production of machines intended for plastics processing. The project was submitted based on the consulted topics, contacts and experience in the field of education and companies. They are in line with national strategies supporting the widening EC policy.