Acadamh Ríoga na hÉireann
Royal Irish Academy

Royal Irish Academy Grants Report

Title:	Dr
First Name:	Alexander
Surname:	Krok
Discipline:	Sciences
Year of Award:	2018
Project Title	FEM modelling of crack propagation in bilayer tablets

1. Research background:

Dr. Krok is seeking to establish a research and academic career in Ireland and therefore it was vital for him to gain advanced research and transferable skills from highly recognised international research teams such as SPERG and PMG. Furthermore, these important trips to the University of Surrey (UK) and Drexel University (USA) fostered also collaborative links with PMTC (Ireland) as well as SSPC (Ireland) as well.

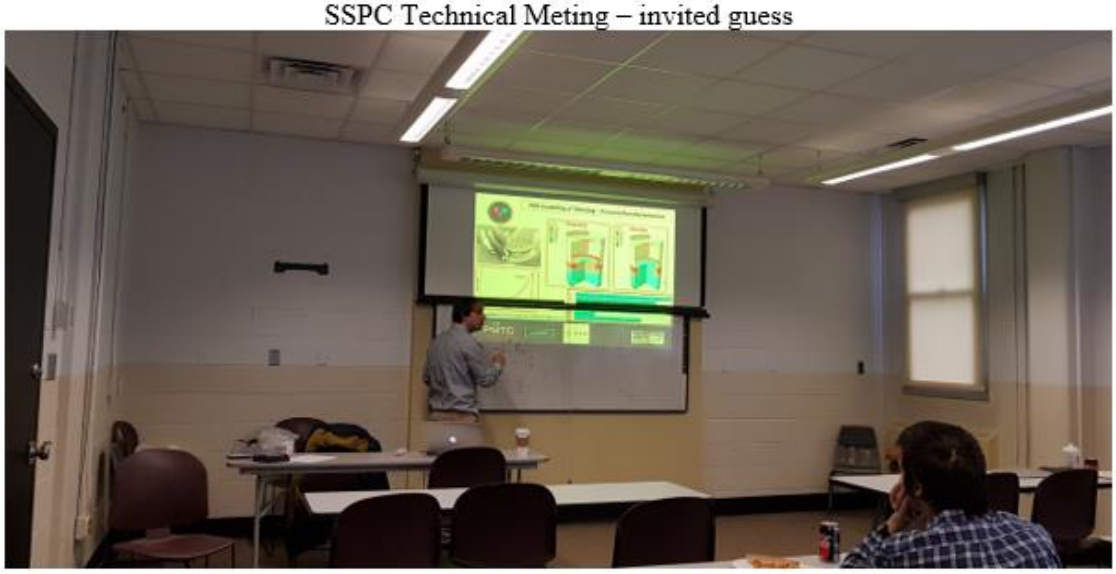
Prof. Wu and Prof. Zavaliangos as well as scientist from SPERG (UK) and PMG (USA) together with Dr. Krok participated intensively in international collaborations and they performed collaborative research on the development of computational models and experimental strategies to investigate crack propagation on the interface of bilayer tablets. Trips supported by RIA enabled also the opportunity to create strong links between the aforementioned hosts (UK & USA) and Cork Institute of Technology (Ireland). Dr. Krok received scientific training from hosts scientific workplace and an important reason for travelling was also to collect data using a uniaxial tensile test which was built at SPERG, as well as to use the unique SEM/X-ray microtomography available at PMG. The knowledge thus acquired was beneficial for CIT in development new cut-edge prototype.

2. Please outline the findings of your research and/or milestones achieved (did you achieve the primary objectives - if not, what did you learn from the process)?

The project achieved all primary objectives of this travel project. Dr. Krok spent short period in two different research organization with highly experience internationally researchers.

During this period, he upskills his research competencies. The collaboration also provided excellent channels to share experience between Dr. Krok and host organisations as well. Moreover, he received training in collection of data using unique X-ray tomography as well as in uniaxial tensile tester. The research interests of all host organisations are complementary, which will therefore foster promising collaboration in the future. It is anticipated that the collaboration will continue to be fruitful beyond the fellowship period and will lead to novel insights into bilayer tableting and place the host organisations in a leading research position in this area.

SSPC Technical Meting – invited guess



Presentation of results and scientific discussion at Rutgers University (USA)

Presentation of results and scientific discussion at Drexel University (USA)