Royal Irish Academy Grants Report

Title:	Dr.
First Name:	Abdollah
Surname:	Malekiafarian
Discipline:	Sciences
Year of Award:	2018
Project Title	Drive-by Railway Track Profile/Stiffness Monitoring Using an Operational Train

1. Research background:

The key focus of this research is to lower maintenance expenditure costs and improve safety and reliability in the transport infrastructure sector.

Drive-by monitoring is an inspection method in which the responses measured on instrumented trains/vehicles are employed for the condition monitoring of components of transport infrastructure, e.g. bridges, highway pavements and railway tracks. In the railway application, sensors are installed on an operational train to provide faster, cheaper and more reliable monitoring approaches. In recent years, many studies have been done on drive-by railway track monitoring, but there are still many challenges that need to be overcome. Great strides are currently being achieved in a research collaboration between the applicant's research group at UCD and Irish Rail.

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)?

A research collaboration has initiated between UCD and University of Alberta. Experimental data from the Canadian Rail Research Laboratory (CaRRL) has been provided to UCD.

Dr. Gul agreed to provide experimental data for drive-by bridge damage detection.