



MESTECH Research Project



Project Title: Development of robust transparent self-cleaning coating for optical devices/sensors.

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Funding Body: Innovation Partnership Programme, Enterprise Ireland

Innovation Partner: Valeo Visions Systems

Project Summary: The overall performance of optical equipment and devices is ultimately dependent on their transparency. This is especially evident when such devices are constantly exposed to varying environmental conditions. Thus the development of a robust, transparent and self-cleaning coating is highly desirable. Instrumentation utilised in the field is often exposed to a range of environments and often suffers fouling which inevitably results in a loss of performance, poor data quality and the need for frequent maintenance.

In this project we propose the study, development and characterisation of novel self-cleaning materials. This involves the incorporation/modification of hydrophobic materials while maintaining a level of optical transparency. Initial work has illustrated that certain sol-gel and nanomaterials show potential for self-cleaning while maintaining optical clarity.

Key Outputs:

- Development of robust transparent self-cleaning coating for optical devices/sensors
- Assessment of current methods, limitations and benefits
- PhD student training in materials development and characterisation
- Publications and contribution to knowledge in the area of self-cleaning materials.

Key Impacts:

- Knowledge in the area is limited and thus it is an important research effort.
- Improved optical device performance will result if transparent, self-cleaning materials can be achieved.
- Has potential impacts across a range of environmental, sensing and technological fields.