Dr Andrea Ferrari receives a European Research Council grant

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The Department's Dr Andrea Ferrari has been awarded a prestigious grant from the European Research Council (ERC) to develop a new class of polymer based optoelectronic devices.

Dr Andrea Ferrari

The ERC encourages researchers to take risks in their research and go beyond established frontiers of knowledge and the boundaries of disciplines. The Starting Independent Research Grant scheme targets promising researchers in Europe who have the proven potential of becoming independent research leaders. It provides them with between EUR500K and EUR2M over five years to study at an institution of their choice. From over 9000 applications for a Starting Independent Research Grant only 220 were successful; a proposal success rate of just three per cent.

Andrea's award of EUR1.8M will enable him to further his research into novel materials at the nano-scale level. Andrea explains, "Fundamental science plays a crucial role in underpinning and generating future technologies. The ability to manipulate the structure and composition at the nano-scale opens new horizons and huge opportunities to create novel materials with superior performance. The introduction of a wide range of new low cost materials, encompassing polymers, advanced liquid crystals, and nanostructures, including carbon nanotubes (CNTs) and nanowires (NWs), will have disruptive impact on a variety of devices based on conventional inorganic semiconductors, not only because of cost/performance advantages, but also because they can be manufactured in more flexible ways, suitable for a growing range of applications."

The aim of Andrea's research is to develop a new class of polymer based optoelectronic devices embedding the optical and electronic functionalities of CNTs. These devices will combine the fabrication advantages of polymer photonics, with the tunable active and passive optical properties of CNTs. Such devices are expected to find a wide range of applications not only in optical communications but also in bio-medical instruments, chemical analysis, time-resolved spectroscopy, electro-optical sampling, microscopy and surgery.

This is an ambitious frontier research program, with a strong interdisciplinary nature, across engineering, physical, chemical and soft matter sciences. Basic physics and chemistry research will be stimulated by the challenges of practical implementation in devices; new directions for applications will be suggested by basic science results.

The ERC grant will also consolidate his newly established research group "Nanomaterials and

Spectroscopy" at Centre for Advanced Photonics and Electronics (CAPE).

For further information please contact Dr Ferrari: acf26@cam.ac.uk or visit the websites of the Electronic Devices & Materials Group (EDM Group) or the Nanomaterials and Spectroscopy Group (NMS Group).

For details of the Starting Independent Researcher Grants, please see the ERC website.