FNM 2016 Program Committee cordially invites people to submit abstracts for The International Workshop on Functional and Nanostructured Materials to be held in Tbilisi, Georgia 6th -10th September 2016.

Functionalised Optical Fibres

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The past, present and future of functionalised optical fibres will be reviewed. Particular focus will be given to the current state of the art and new breakthroughs pertaining to the integration of semiconductor and low-dimensional materials with the optical fibre platform.

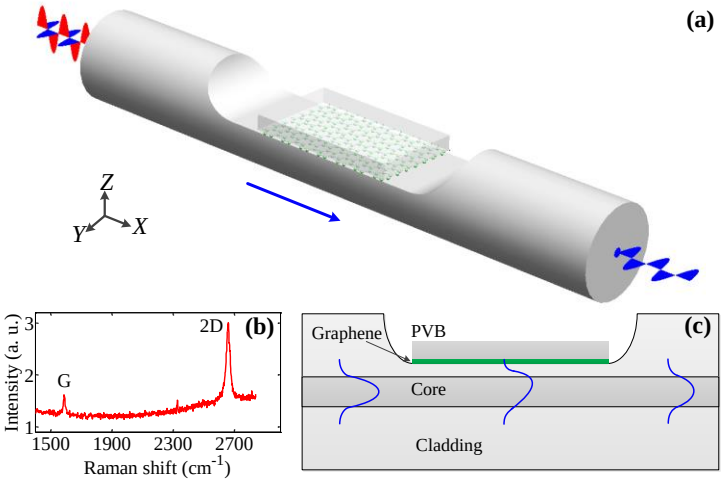

Figure 1. a, Schematic illustration of the graphene fucntionalised fibre based modulator. b, Raman spectrum of a typical graphene sheet, with 2D:G ratio of 4:1 and a 2D peak FWHM of 25 cm^{-1}. c, A schematic of the longitudinal cross-section of the modulator, solid blue lines indicate the propagating electromagnetic field.

Over the last 25 years, the optical fibre has been the key driving force behind the transformation of the world's telecommunications networks. In more recent times, they have found important applications in a spectacularly wide array of fields that range from spectroscopy on Mars to surgical tools used inside the human body. In an effort to continue this incredible success story, research teams from around the world have been striving to develop optical fibres with ever increasing functionality. Key examples being the rare earth doped fibres and the microstructured optical fibres. However, there is a more recent trend to investigate non-vitreous materials as a means of enhancing the fibre's functionality. This includes the incorporation of materials as diverse as semiconductors [1,2] and those with low dimensional molecular structures [3]. This new generation of optical fibre offers rich optoelectronic functionality that is not available to their all-glass fibre counterparts. In this talk, the benefits and applications afforded by these new functional optical fibres will be discussed.

[1] A.C.Peacock et al., Laser Photonics Rev., 8, 53 (2014)
[2] N.Healy et al., Nat. Mater., 13, 1122-1127 (2014)
[3] H.Zhang et al., Sci Rep., 6, 23512 (2016)

FNM 2016 aims to bring together physics, material science and engineering communities to present and discuss their work on fundamental physics and applications of functional nanoengineered materials.