



# FLEET

ARC CENTRE OF EXCELLENCE IN  
FUTURE LOW-ENERGY  
ELECTRONICS TECHNOLOGIES

## FLEET RESEARCH SEMINAR

# Graphene as playground for molecules: from physisorption to catalysis

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**Abstract:** Organic functionalization of graphene has been suggested as an ideal tool to provide control over its electronic, optical, or magnetic properties. I will discuss three examples covering different aspects of graphene molecule interactions. The first is the physisorption of electron acceptor molecules, TCNQ, on graphene epitaxially grown on Ru(0001) and the formation of a full organic layer with long range magnetic order. The second example is the covalent functionalization of graphene with strict spatial periodicity at the nanometer scale. Finally I will discuss how epitaxial graphene becomes a catalyser that promotes the reversible formation of a C-C bond between two organic molecules, a reaction which is fully reversible.

**About the Speaker:** *Amadeo L. Vázquez de Parga* obtained his PhD at the Universidad Autónoma de Madrid (UAM). In 1993-1994 he carried out a postdoctoral stay at I.B.M. Research laboratory in Rüschlikon (Switzerland) working on the characterization of the light emitted by the tunnel junction in a Scanning Tunnelling Microscope. From 1999 is Professor in Condensed Matter Physics at UAM, from 2008 is Associated Senior Researcher at IMDEA-Nanoscience and from 2013 Associated Research Professor at the Condensed Matter Physics Center (IFIMAC). During 2002 and 2003 was a visiting researcher at the Radboud University, Nijmegen (The Netherlands), working on spin-polarized Scanning Tunnelling Microscopy.

**DATE:** Tuesday 18 September 2018

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