

MAR16-2015-000238

Abstract for an Invited Paper  
for the MAR16 Meeting of  
the American Physical Society

### **2D semiconductor optoelectronics**

KOSTYA NOVOSELOV, University of Manchester

The advent of graphene and related 2D materials has recently led to a new technology: heterostructures based on these atomically thin crystals. The paradigm proved itself extremely versatile and led to rapid demonstration of tunnelling diodes with negative differential resistance, tunnelling transistors, photovoltaic devices, etc. By taking the complexity and functionality of such van der Waals heterostructures to the next level we introduce quantum wells engineered with one atomic plane precision. Light emission from such quantum wells, quantum dots and polaritonic effects will be discussed.