

Millikelvin and High Field platforms for 2D research

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The study of Graphene 2D materials and surface phenomena using low temperatures down to a few mK and high magnetic fields up to 25 Tesla. Traditionally this required the use of liquid helium, an increasingly expensive resource. Cryogenic has led the way in building instruments that are cryogen free for QHR measurements in Graphene and other 2D materials. In addition we supply vector magnets and 30 mK systems for STM research in collaboration with Unisoku, Japan. This presentation discusses some of the issues involved. See examples below;

FIGURES

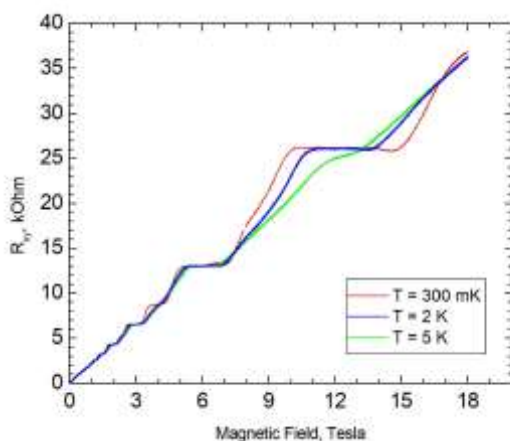


Figure 1: Left: Hall resistance measurement of a GaAs-AlGaAs Quantum well. Individual Landau levels are clearly resolved when the measurement is carried out at 300 mK.

Right: 14 Tesla Cryogen Free Magnet system with temperatures down to 1.3 K

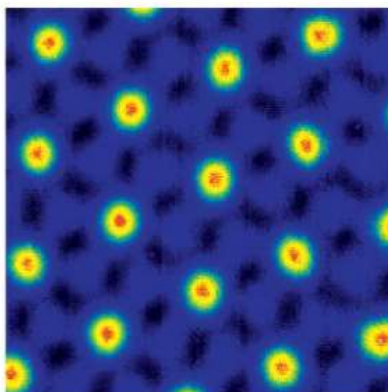


Figure 2: STM image of the magnetic field vortices in a superconductor at 400 milliK in field of 500 gauss (Images courtesy of Unisoku Ltd and Dr Hanaguri (Riken Institute Japan))