



Science City Cleanroom for Energy Efficient Semiconductors

Based at School of Engineering, University of Warwick.

Equipment/facility	Description	Status
Deposition		
SiC High temperature anneal furnace	A unique custom vertical designed furnace aimed at high quality Gate oxides on SiC in a new temperature regime up to 1500°C and implant annealing 100 mm wafers in Argon up to 1800°C	Available mid-late 2010
LPCVD Oxidation Furnace	Low Pressure TEOS Deposition – an PC based furnace system which will deposit high quality oxides on 100mm wafers	Available
Metal Deposition Sputterer	A refurbished PC controlled CVC deposition tool. Utilising 4inch targets consisting of : Aluminium, Nickel/Vanadium, Titanium and Titanium Nitride	Available
Mini-Brute Furnace	A metal contact formation furnace capable of 1000°C specifically for SiC processing	Available
Metrology		
Spectral Ellipsometer	Rudolf Auto EL IV ellipsometer film thickness measurement tool. 6inch capability, selectable wavelength between 405 to 650nm	Available
Surface Profiler	Ambios XP-100 stylus profiler, sample stage 140mm with vertical resolution of 0.38 Angstroms and 1200 microns range	Available
High Precision Microscope	A Reichart analytical microscope with a high quality CCD camera and image processing software	Available
Etch		
Inductively Coupled Plasma Dry Etcher	Corial 200IL ICP system, with vacuum load locks dedicated to SiC, Si, SiO ₂ and Si ₃ N ₄ etching using fluorinated gases on 100mm wafers.	Available
Plasma barrel asher,	Full PC controlled refurbished Plasma PRS880 stripping tool	Available
Assembly		
Thick wire bonder	Orthodyne model 20 ultrasonic wire bonder capable of 100-500 micron diameter wires, with Nikon x10 Microscope and fibre optic target system.	Available
Photolithography		
Lithography tool set	Ultratech 1000 Stepper providing 1:1 imaging and associated coater and developer track system capable of 1.2 micron lithography	Available

This cleanroom facility is funded by Advantage West Midlands (AWM) and the European Regional Development Fund (ERDF) as part of the Birmingham Science City Energy Efficiency & Demand project. The University of Warwick is leading the £10.6 million project in collaboration with the University of Birmingham. Some £9.5m has been invested in leading-edge research equipment which can be accessed by any interested users.