













Equipment Custodians



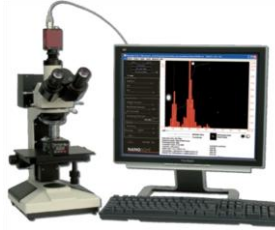
Warwick (Julie MacPherson & Dave Haddleton)


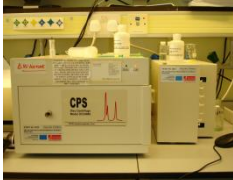


Equipment	Known As	Company	Model	Location	Custodian	Purpose and use	Features		UoW Ref
Molecular size determination equipment	GPC Suite & High Temp GPC	Varian (Polymer Labs)	4 x 390-LC Systems & PL-GPC 220	Floor 2 Chemistry	David Haddleton	Measurement of molecular size & molecular weight at high & ambient temperature in organic solvents & aqueous media.	Full range of commercial columns and solvent capability (DMF, THF, Aqueous & Chloroform) Detectors (Viscometry, DRI, Light Scattering, UV, Fluorescence) High temp (30-220°C)		2.1
On-line process Monitoring	ACOMP Online GPC	Varian (Polymer Labs)	PL-PMC-003	Floor 2 Chemistry	David Haddleton	Monitoring reaction kinetics in real time with concentration monitoring (UV, DRI) and molecular weight measurements (Light scattering)	Reactor and Detector unit allowing automated acquisition and analysis of real time data through the continuous sampling reactor. Allows analysis of conversion, molecular weight, copolymer composition & polydispersity through GPC		2.2
Quartz crystal microbalance with dissipation monitoring & associated electrochemistry module	QCM	Qsense	E4 & E1 System	Floor 2 Chemistry	Andy Marsh & David Haddleton	Used to investigate dynamic surface (materials and biological) processes under relevant physiological conditions of temperature and pH. Capabilities for potential control of surface	E1 single sensor unit and E4 unit with four sensors (used in serial or parallel configuration). High throughput and reproducibility. Flow cell and Electrochemical cell. Examples of use: protein adsorption/interaction, polymer multilayer formation and lipid biosensor templates		2.3
Organic thin film deposition system	Thin Film System	mBraun	200B Glovebox with solar simulator	Floor 4 Chemistry	Ross Hatton	Formation of thin organic films	Glovebox unit with organic evaporator and thin film deposition system with rate and thickness control. ABET Technologies Solar Simulator with Xe Arc lamp (550W)		2.4

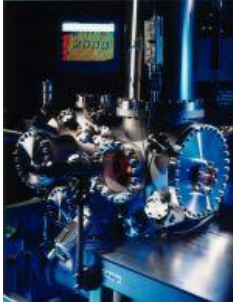

Structural and chemical analyser combining SEM, Raman, photoluminescence & cathode-luminescence spectroscopy	A Raman Microscope & B Cathode-luminescence System	A Renishaw & B Gatan	A InVia Reflex & B MonoCL3 with Digiscan	A Millburn House & B Floor 4 Physics	Mark Newton	Provides spatially resolved information on structure, bonding, constituents, and electronic structure of a wide variety of functional and structural materials.	Raman Microscope with UV (325/442 nm) and red (613 nm) lasers. Confocal options		2.5
Laser scanning confocal microscope, with both visible and UV lasers (continuously tunable and fast scan) & configurable in both upright & inverted configurations, with high speed camera attachment	A Confocal Microscope & B High Speed Camera with Microscope	A Leica & B Leica with Vision Research	A TCS SP5 X & B DM 2500M with Phantom Monochrome v.7.3	A Floor 1 Chemistry & B Floor 3 Chemistry	Pat Unwin (Part A) Stefan Bon (Part B)	Investigating soft matter surfaces and interfaces allowing observation of the interaction of a wide range of molecules with surfaces and interfaces including polymers, colloids, electrode (sensor) surfaces etc. This instrument will offer ultra-fast imaging and the widest range of excitation wavelengths in the visible range via a continuously tunable laser.	Supercontinuum confocal with range 470 – 670 nm in 1 nm increments. Five detection channels and greatest confocal sensitivity on the market. Upright and inverted configurations are possible. Tunable white-light laser source.		2.6
Multi-channel electrochemical potentiostat & hydrodynamic electrode system	A Potentiostats & B Rotating Disc Electrode	A CH Instrument & B Gamry Instrument	A 2 x CH1040A & B RDE710	Floor 1 Chemistry	Pat Unwin	Parallel evaluation and testing of materials and sensors	2 x 8-Channel computerized potentiostats with digital function generators and multiplexed data acquisition circuitry. Can be used for 8 independent cells or 8 working electrodes in the same solution with a common reference Rotating Disc Electrode – range 50 – 10,000 rpm with variety of electrode types. Can be used for catalyst evaluation or applications where defined mass transport to the sample electrode is desired.		2.7

Scanning probe workstation	AFM	Veeco	diMultimode V	Floor 1 Chemistry	Julie MacPherson	Device characterisation for systems that undergo conductivity changes in response to external stimuli (light, temperature, applied potential, etc)	Performs the full range of AFM/STM measurements and techniques and can be used for topography, elasticity, friction, adhesion and magnetic/electric fields. The controller allows high pixel density image capture (5120x5120) with up to 8 simultaneous images. Highest resolution SPM on the market.		2.8
Cryo-stage for FE-SEM	Cryo-stage	Gatan	Cryo-stage	Floor 4 Physics	Stefan Bon	High resolution structural analysis of soft matter and microtoming			2.9
Scanning & imaging spectroscopic ellipsometer	Ellipsometer	Windsor Scientific	Vario Basic 40-100	Floor 1 Chemistry	Pat Unwin	Determination of film thickness, morphology, microtribology of sensors including oxide/nitride device structures; self assembled molecules and thin film polymeric materials; next generation energy-efficient glazings.	Imaging function allows mapping function; surface plasmon resonance (SPR) cell is included. Spatial resolution to 1 µm. Measure structured surfaces and surface inhomogeneities measuring quantitative thickness mapping.		2.10
TEM: high vacuum carbon evaporator	TEM Carbon evaporator	Quorum Tech	Carbon Evaporator	Floor 4 Physics	Steve York	Formation of thin carbon coatings essential for TEM analysis			2.11
Fast Protein Liquid Chromatography equipment	FPLCs	GE Healthcare	2 x AKTA-Purifier 900/950	Floor 1 Chemistry & Floor 2 Chemistry	Claudia Blindauer (Part A) David Haddleton (Part B)	Purification and characterisation of protein and peptide hybrid biosensors and macromolecular devices	2 x FPLC systems with flow rate to 20 ml/min for fast separations. High-performance Monitor measures UV and temperature compensated conductivity and pH.		2.12


Bioanalyser	Bioanalyser	Agilent	2100	Floor 2 Chemistry	David Haddleton	Characterisation of protein sensors – lab on a chip technology	Microfluidics-based platform for sizing, quantification and quality control of DNA, RNA, proteins and cells. 10-12 samples can be analysed in 30-40 minutes with results in digital data.		2.13
High resolution hybrid mass spectrometer	A MaXis LC-MS & B ESI Ion Trap	Bruker Daltonics	A MaXis with Proxeon Easy-LC and Ultimate 3000 HPLC & B Discovery ESI Ion Trap with G1300 HPLC	Floor 1 Chemistry	Peter Sadler & Lijiang Song	Characterisation of (bio)polymers and their supramolecular assemblies at femtomole resolution	Ultra high resolution – time of flight mass spectrometer for use in applications such as: Small molecule identifications Metabolomics Quantitative proteomics & biomarker discovery resolution in excess of 40,000 FWHM and MS and MS/MS mass accuracy typically between 600 – 800 ppb at speeds of up to 20 full spectra per second		2.14
Differential scanning calorimeter (DSC)	DSC (autosampler)	Mettler Toledo	DSC1-400 System	Floor 1 Physics	Diane Holland	Quantitative measure of phase transitions used to analyse phase composition of materials e.g. purity determination in pharmaceuticals.	High sensitivity DSC with analysis over the temperature range -150 - +700 °C ± 0.1 °C 0.04 µW resolution Autosampler		2.15
Thermogravimetric analyser (TG)	DSC/TGA (autosampler)	Mettler Toledo	DSC1-Star System	Floor 1 Physics	Diane Holland	Study thermodynamics and kinetics of processes involving weight loss such as corrosion and oxidation.	Temperature range: 20 – 1600 °C, ± 0.3 °C Controlled atmosphere 0.1 µg resolution TGA 0.1 mW resolution DSC Autosampler		2.16
Differential thermal analyser (DTA)	DSC/TGA High Temp	Mettler Toledo	TGA/DSC1-1600 System	Floor 1 Physics	Diane Holland	Monitoring of phase changes in high temperature materials such as metals and ceramics.	Temperature range 20 – 1600 °C, ± 0.3 °C Controlled atmosphere 0.1 µg resolution TGA 0.1 mW resolution DSC For high temperature use		2.17




Microcalorimeter	Micro-calorimeter	TA Instruments	TAM III	Floor 2 Chemistry	Stefan Bon	High-throughput, high sensitivity calorimeter for polymer and pharmaceutical development, cement formulation and accelerated corrosion testing.	Thermostat precisely controls the liquid bath temperature to within 0.0001 °C, and can be operated in isothermal, step-isothermal or temperature-scanning mode. Temperature range: 15 - 150 °C.		2.18
EMD/ODM droplet analyser	Droplet analyser	Kruss	DSA-100	Floor 3 Chemistry	Stefan Bon	Surface tension measurements and particle sizing at the micron scale	EDM/ODM module (Expanding Drop Method/Oscillating Drop Method) for rheological interface experiments. Measurement of static and dynamic contact angles Measurement of surface free energy of solids Determination of polar and dispersive components, Lewis acid and base components, hydrogen bond forces Measurement of interfacial and surface tension of liquids		2.19
Dark field particle tracker	Dark field particle tracker	Nanosight/ Brunel	LM10	Floor 3 Chemistry	Stefan Bon	Particle sizing at the sub micron scale	Based on a conventional optical microscope; uses a laser light source to illuminate nano-scale particles in a 500 µl sample introduced to the viewing unit with a disposable syringe. Particles appear individually as point-scatterers moving under Brownian motion. Polydisperse and multimodal systems are recognisable and quantifiable, as are agglomerates and contaminants.		2.20


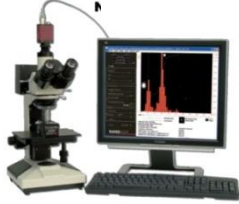



Dynamic Light Scattering/zetapotential apparatus	DLS/Zetasizer	Malvern Instruments	Nano-ZS	Floor 3 Chemistry	Stefan Bon	Measure stability, conformation, aggregation and complex formation in biological systems. Particle radius sizer (1- 800 nm)	Versatile and highly sensitive: can measure particle size (0.6 nm – 6 µm diameter) over the molecular weight range (1000 – 2x10 ⁷ Da) Can be used in analysing size of colloids and nanoparticles, pigments and inks, Protein size, proteomics, melting point, colloid stability, water treatment, isoelectric point determination		2.21
High RPM disc centrifuge	Disc Centrifuge	CPS Instruments	AS200	Floor 3 Chemistry	Stefan Bon	Particle sizer (2 nm – 50 µm) and measurement of aggregation behavior	Variable speed centrifuge separates wide range of particle size. Automatic sample injector.		2.22
Particle sizer (powder)	Mastersizer	Malvern Instruments	2000 System	Floor 3 Chemistry	Stefan Bon	Particle radius determination in the size range 0.02-2000 µm for powders/dispersions/emulsions.	Measures materials from 0.02µm to 2000µm with autosampler and range of dispersion units.		2.23
Micropore analyser	Micropore Analyser	Micro-meritics	ASAP2000	Floor 2 Chemistry	Stefan Bon	Measurement of pore size and shape e.g. in catalysts and bio-scaffolds.	Used to characterize the active and support surfaces of catalysts, to determine the high surface areas of adsorbents, and to determine the microporosity and hydrogen storage capacity of various nano materials. Materials with low surface areas such as powdered metals, glass fibers, and natural organic materials can also be analyzed.		2.24

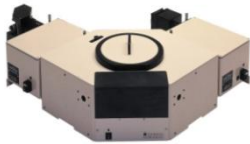
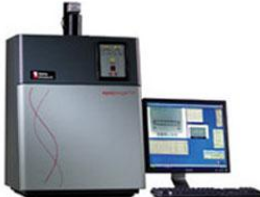



Scanning Tunneling Microscope	UHV-STM	Scanwel		Not yet delivered	Giovanni Costantini				2.25
Nuclear Magnetic Resonance spectrometers	850 MHz Solid State NMR & Probes	Bruker BioSpin		Not yet operating	Mark Smith	Development of High-field 850MHz NMR Spectrometer	850 MHz widebore solid-state NMR system (4 channel HFX with 11 MAS (1.3 to 7 mm) and static probes)		2.27



Birmingham Chemistry (Jon Preece)

Equipment	Known As	Company	Model	Location	Custodian	Purpose and use	Features	Picture	UoB Ref
Avance 400 II NMR Spectrometer	300 and 400 MHz NMR Spectrometer	Bruker BioSpin	Avance III 300 & 400	Floor 1 Chemistry	Neil Spencer	High performance digital 2 channel NMR spectrometer for characterisation of molecular materials and nanoparticles	300 and 400 MHz NMR Spectrometers refurbished and equipment with automation and new Avance III controllers for routine solution NMR analysis including ^1H , ^{13}C , ^{19}F , ^{31}P as well as more demanding multi-pulse experiments. Temperature range -95°C to $+110^\circ\text{C}$. Capacity to study traditional inorganic nuclei.		Bid2 E1



Maldi Micro MX System	MALDI-MS	Waters	Micro MX	Floor 1 Chemistry	Peter Ashton	Mass spectrometry for characterisation of nanomaterials	<p>High-performance, matrix-assisted laser desorption/ionization time-of-flight mass spectrometer featuring parallel PSD technology for confirming protein identification and determining post-translational modifications.</p> <p>Enables analysis of sub-femtomole quantities of biological and synthetic molecules (200 Da->500 KDa) In reflection mode with $m/z < 4k$ Da high resolution spectra obtained. In linear mode, very high MWt observed (polymers, proteins etc) Negative ion capability allows applications in genotyping and polysaccharide analysis</p>		Bid2 E2
Gas chromatography mass spectrometrer system	GCMS	Waters	GCT Premier	Floor 1 Chemistry	Peter Ashton	Mass spectrometer for characterisation of molecular materials	<p>An orthogonal acceleration time-of-flight mass spectrometer with High MS resolution for the selectivity needed to separate analyte spectra from isobaric interferences and background chemical noise. Identifies the elemental compositions of small molecules (sub-5 ppm RMS). EI, CI and FI ionization.</p>		Bid2 E3
High performance liquid and gas chromatography system	HPLCs and GCs	Shimadzu	2 x LC20 & 2 x GC2010	Floor 3 Chemistry	Peter Ashton & Graham Burns	Instrumentation for purification of molecular materials and nanomaterials	<p>2 x HPLC systems with multiple detectors: variable wavelength UV photo diode-array (scan through 190nm – 800 nm for eluted compounds), evaporative light scattering (for use when no chromophore is present) fluorescent detection (for use with markers).</p> <p>2 x GC systems supporting high speed analysis (cooling from 450 to 50°C in 6 minutes) up to 970kPa and 1200 mL/min</p>		Bid2 E4

Mass Spectrometry System for Surface Analysis	KORE MS	KORE	Surface Seer	Not yet delivered	Jon Preece	Surface mass spectrometry instrument for characterisation of self-assembled monolayers	TOF-SIMS Mass Spectrometer used for surface analysis and detection of all elements as well as identification of organic species and thin film profiling Capable of insulator analysis, positive and negative SIMS with reflectron analyser. Mass range >1000m/z		Bid2 E5
Nanoparticle characterisation instrument	Nanoparticle Characteriser	Nanosight	Firefly LM10	Floor 1 Chemistry	Jon Preece	Instrument for nanoparticle size determination	Based on a conventional optical microscope; uses a laser light source to illuminate nano-scale particles in a 500 ml sample introduced to the viewing unit with a disposable syringe. Particles appear individually as point-scatterers moving under Brownian motion.		Bid2 E6
Zeta potentiometer and molecular weight characteriser	Zetasizer	Beckman Coulter	Delta Nano C	Floor 1 Chemistry	Jon Preece	Instrument for analyzing charge and size of nanoparticles	Particle Size Analyser (0.6 nm – 7 µm) Zetapotential (-100 mV - +100 mV). Concentration 0.001 – 40% pH 1 – 13 Temperature 10 – 90°C		Bid2 E7
UV/Vis spectrometer	UV/Vis Spectrometer	Varian	Cary 50	Floor 1 Chemistry	Jon Preece	Instrument for the characterisation of molecules and nanoparticles	Scans 190-1100 nm in less than 3 seconds Temperature range 0 – 100°C Reproducibility (± 0.1°C), stability (± 0.1°C) and accuracy (± 0.1°C) Inbuilt electromagnetic stirring		Bid2 E8
Near IR spectrometer Oxford cryostat, internal DRA	Near IR Spectrophotometer	Varian	Cary 5000	Floor 1 Chemistry	Zoe Pikramenou	Instrument for the characterisation of molecular and nanoparticles	High specification absorption spectrometer (175 – 3300 nm) Oxford Cryostat allows liquid N ₂ temperatures Solution and solid samples with holder for thin films, peltier for DNA melting and diffuse reflectance accessory for solid		Bid2 E9




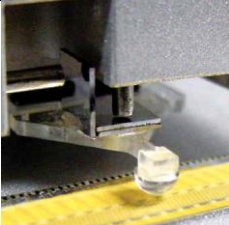
High performance steady-state and TCSPC lifetime system	Steady State System	Edinburgh Instruments		Not yet delivered	Zoe Pikramenou	Instrument for carrying out advanced fluorometric analysis on molecule and nanomaterials	Modular instrument for measuring fluorescence and phosphorescence decays in the time range 100 ps – 10 s With Xe flashlamp, picoseconds pulsed diode laser and LED. Detection in visible and near IR		Bid2 E10
Gel electrophoresis kit	Gel Electrophoresis Kit	Genetic Research Instrumentation (GRI)	Alpha-Imager HP System	Not yet delivered	John Fossey	DNA binding studies	Gel electrophoresis imaging equipment for fluorescent & colourmetric imaging as well as visible imaging. Used for culture plate & microplate based arrays and 1D and 2D gels that require fine resolving.		Bid2 E11
Microvate solo	Microvate Solo	Anachem - ReactArray		Floor 2 Chemistry	MaryJane Tremayne	Crystallisation cell for carrying out controlled crystallisation of molecular and nanomaterials	Temperature (-30 to 150 °C) with 12 independent temperature zones and controlled temperature ramping 250ul to 2ml volume range		Bid2 E12
Metal evaporator	Metal Evaporator	Edwards	E306 Coater	Floor 1 Chemistry	Jon Preece	Preparation of gold surfaces for potential sensor devices	Evaporator for gold, aluminum, silver, chromium, copper and germanium. Equipped with the ability to select sources during processing enabling in situ multilayer formation. Deposition is monitored by advanced QCM monitor. Deposition rates 0.01 or 0.001 nm s ⁻¹		Bid2 E13
Scan head for existing AFM	AFM Scan Head			Not yet delivered	Jon Preece	Allow high resolution STM imaging of electrode surfaces			Bid2 E14
Organic solvents stills unit	Solvent Stills	Innovative Technology	Solvent Purification System	Floor 4 & Floor 7 Chemistry	Jon Preece	A dedicated unit for the production of high quality dry solvents used in the synthesis of molecular materials and nanoparticles	Produces dry solvents		Bid2 E15






Advanced glovebox chamber	Glovebox	m-Braun		Not yet delivered	Paul Davies	Apparatus for carrying out molecular material and nanoparticle synthesis under controlled atmospheric conditions	Enabling tool for synthesis for the preparation, manipulation and storage of moisture and/or air (O ₂ /N ₂) sensitive materials. Maintains constant atmosphere for process development		Bid2 E16
Microwave reaction station	Microwave Reaction Station	CEM	Discoverer S-Class	Floor 4	Richard Grainger & Anna Peacock	Instrument for carrying out 48 reactions via microwave synthesis	Enables chemical and polymer synthesis. Capacity: at 21 bar: 10, 35, 80 mL vessels; at atmospheric pressure: 125 mL vessels. Manual peptide solid phase synthesis accessory and gas addition accessory (H ₂ /CO)		Bid2 E17




Birmingham Chemical Engineering (Mike Adams)



Equipment	Known As	Company	Model	Location	Custodian	Purpose and use	Features	Pictures	UoB Ref
Particle size and shape analyser	Powder Size and Shape Analyser	SympaTEC	HELOS/BF & QICPIC	AM2 Lab (102/103)	Rachel Bridson	Characterisation of particulate systems (dry and wet dispersions)	Image analysis sensor with short exposure time (< 1ns) to capture particles with speed of up to 100 m/s. Used for agglomerated fine and cohesive powders (1 µm – 20 mm). Laser diffraction sensor 0.1 µm – 875 µm for wet and dry samples (suspensions, powders, emulsions and sprays).		Bid2 E18
DVS moisture adsorption apparatus	Moisture Adsorption Apparatus	Surface Mmt Systems	DVSA-STD	AM2 Lab (102/103)	Rachel Bridson	Physicochemical characterisation of materials and their behaviors in different humidity and temperature environments.	Gravimetric moisture sorption measurement using 0.05 µg resolution microbalance. Organic solute and water reservoirs and ability to pre-heat sample up to 200 °C		Bid2 E19

Raman microscope	Confocal Raman	Witec Princeton Instrument	Alpha 300	AM2 Lab (102/103)	Liam Grover	<p>Observation of the chemical bonds present in wet and dry biological and non-biological samples. Map individual cells and monitor inter and intracellular processes. Analyses of phase compositions in separated systems eg biopolymers.</p> <p>Characterisation of deposits on catalyst surfaces such as coke compounds. Chemical bonding of body implant surfaces. Vibrational spectroscopy of biomolecules immobilised on nanostructured surfaces - application to biochips.</p>	<p>Ultrafast, high resolution and Non-destructive chemical imaging. Resolution to optical diffraction limit (~200 nm). Allows the observation and analysis of the distribution of different phases in ambient conditions and the confocal option allows 3D analysis of transparent samples.</p>		Bid2 E20
USP dissolution apparatus	Dissolution Apparatus	Varian		AM2 Lab (102/103)	Liam Grover	<p>Dissolution studies at industry standards. Applications include formulations/materials/ dosage forms that dissolve/breakdown/release in vivo. Monitor the degradation of resorbable biomaterials in addition to release from pharmaceutical materials and devices.</p> <p>Tissue engineering constructs resorption under physiological conditions and whether pharmacological agents remain within a construct, or are lost to the surrounding environment.</p>			Bid2 E21
Helium pycnometer	Helium Pycnometer	Micro-meritics	Accupyc II 1340	AM2 Lab (102/103)	Liam Grover	<p>Highly accurate method for measuring the densities of powders, bulk objects and porous scaffolds.</p>	<p>High-speed, high-precision volume measurements and density calculations on a wide variety of powders, solids, and slurries. Uses gas displacement to measure volume. Measures the absolute density of solids and slurries having volumes from 0.01 to 350 cm³</p>		Bid2 E22

Mercury porosimeter	Mercury Porosimeter	Micro-meritics	Autopore IV	AM2 Lab (102/103)	Liam Grover	Determines the pore size distribution and pore volume of materials. Correlation of mechanical performance of bulk materials with maximum flaw size and total porosity. Dental and medical materials, porous scaffolds and catalyst.	Characterizes a material's porosity by applying various levels of pressure to a sample immersed in mercury. The pressure required to intrude mercury into the sample's pores is inversely proportional to the size of the pores. Measures pore diameters from 0.003 to 360 μm		Bid2 E23
Universal mechanical tester	Universal Mechanical Tester	Zwick	Z030	AM2 Lab (102/103)	Liam Grover	Measurement of mechanical properties with liquid immersion facilities to work under physiological conditions.	Testing system for torsion and tensile strength of materials		Bid2 E24
Environmental mechanical analyser	Environmental Mechanical Analyser	Instron	MicroTest	AM2 Lab (102/103)	Liam Grover	Measurement of mechanical properties as a function of humidity and temperature.			Bid2 E25
Environmental nano tribometer	Environmental Nano Tribometer			Not yet delivered	Mike Adams	Measurement of friction, lubrication and wear.			Bid2 E26
Modified CSM nano tribometer	Nano Tribometer			Not yet delivered	Mike Adams	Tribological measurements under controlled humidity and temperature.			Bid2 E27

Non contact profilometer	Interferometer	KLA Tencor	MicroXAM2	AM2 Lab (102/103)	Mike Adams	Measurement of surface topography and wear volume.			Bid2 E28
Scanning probe microscope	AFM	JPK Instrument	BioWizard II	AM2 Lab (102/103)	Mike Adams	Atomic force measurements such as normal interactions and imaging.	High resolution imaging and force measurements. Works in all major AFM modes. In-situ imaging in biological/chemical fluids or in air. Measurements at variable temperatures with perfusion possibilities. Large scan field of 100x100x15 µm ³		Bid2 E29
Nanomanipulation system	Nano-manipulator			Not yet delivered	Mike Adams	Mechanical characterization of single micro/nanoparticles, particle-particle interactions and particle-surface interactions			Bid2 E30
Nanoindenter	Nanoindenter	Micro-materials	NanoTest	AM2 Lab (102/103)	Mike Adams	Measurement of bulk mechanical properties and scratch characteristics with facilities for liquid immersion and local humidity/temperature control.	Nano-mechanical property measurement system for a range of nanomechanical and nanotribological tests, including nanoindentation, nano-scratch and wear, nano-impact and fatigue, elevated temperature nanoindentation and indentation in fluids. Testing possible up to 750 °C		Bid2 E31
Surface Plasmon Resonance apparatus	SPR	Reichert	SR7000	AM2 Lab (102/103)	Paula Mendes	Provides high quality, real time kinetic data for bio-molecular reactions requiring no tags or labeling of compounds or proteins.	Measures biomolecular Interactions (proteins, antibodies, peptides, DNA, RNA, lipids, etc.): Kinetics Affinity/ Equilibrium Thermodynamics Concentration Determination Drug Binding		Bid2 E32
3D time resolved microscope	Confocal Microscope	Leica	DM2500 & TCS SPE	AM2 Lab (102/103)	Philip Cox	To provide first rate capabilities to analyse microstructures in 3-D. Used for analysis of biomedical implants, scaffolds for cell growth and delivery system (e.g. for controlled and targeted delivery of drugs, bioactives etc.)	488, 532 and 635 nm excitation and Freely tunable spectral detection (430-750 nm)		Bid2 E33

Rheometer	Rheometer	TA Instrument	AR G2	AM2 Lab (102/103)	Taghi Miri	Rheological analysis of soft solids for use in implants and delivery systems.	Ultra-low nano torque control down to 3 nN.m in controlled stress and direct strain controlled modes.		Bid2 E34
Single point laser vibrometer	Vibrometer	Polytec	OFV-5000	Dental School	Damien Walmsley	Measure vibration amplitude; frequency and spatial location to give full vibration mapping of an object under test. Integral video camera used to monitor the area and provide a captured image for superimposition of the vibration data. Evaluation of the design of dental instrumentation such as ultrasonic scalers and dental drills.	Both analogue and digital decoders are available, giving a frequency range from near DC to 24 MHz, with velocities to ± 10 m/s and displacements from the sub-nanometer to meter range. Full remote control, laser auto-focusing and other functions are incorporated		Bid2 E35
Wavelength filters	Wavelength Filters	Edmund Optics		Dental School	Will Palin	A series of bandpass filters for spectral imaging of biological tissue and to calculate the absorption efficiencies of photoreactive species			Bid2 E36
Dental Research Instruments including Fatigue Tester, Thermal Cycler and Polymerisation Stress Tester	Dental Analyser	Proto-Tech	Dental Analyser	Dental School	Will Palin	Oral wear simulator and cyclic fatigue device for accurate measurements for predicting the clinical performance of new dental restorative materials	A: Thermal Cycler – reproduces the temperature cycling which occurs in the mouth to evaluate dental materials (0-80 °C) B: Polymerisation Stress Tester – measures stress and shrinkage in polymerization of dental composites C: Fatigue Tester – uses precision solenoids to deliver smooth loading up to 400N and up to four samples can be simultaneously cycled in 37 °C water		Bid2 E37

Rapid prototyper	Rapid Prototyper	Inition/3D Systems	Projet	Psych	Alan Wing	To create 3D objects and surfaces for tactile studies.			Bid2 E38
Disc centrifuge	Disc Centrifuge	Analytik	DC24000	Biosci	Lynne Macaskie	To size nanoparticles quickly and accurately as well as give information about the dispersion.	Analyses particle sizes from 5 nm up to 80 µm. Resolution of particles that vary by just 2% is possible		Bid2 E39