LSF Operational Statistics

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RAL-based experiments

In the reporting period (April 2007 to March 2008), 33 different User groups performed a total of 55 experiments in the LSF laboratories at RAL. A total of 4251 hours laser time was scheduled to the User community and European Users throughout the year. 5045 hours were delivered with only 81 hours downtime. This year saw for the first time the majority subject area scheduled as Biology/Bio-Materials whereas all previous years have been chemistry. A full breakdown by subject by number of weeks applications verses weeks scheduled is shown in figure 2. The RAL-Based schedule is shown in table 1. The average User satisfaction marks obtained from the scheduled users are shown in figure 3. There were a total of 51 publications, 51 conference proceedings and presentations including posters, and 1 PhD thesis published during the reporting year.

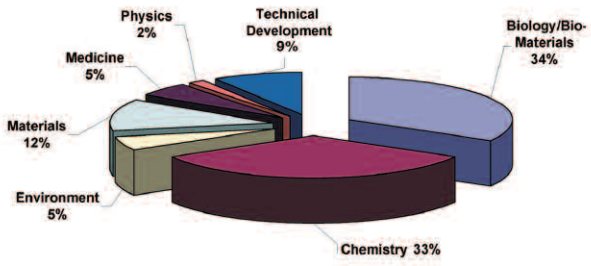

Figure 1. RAL-based bids by subject group

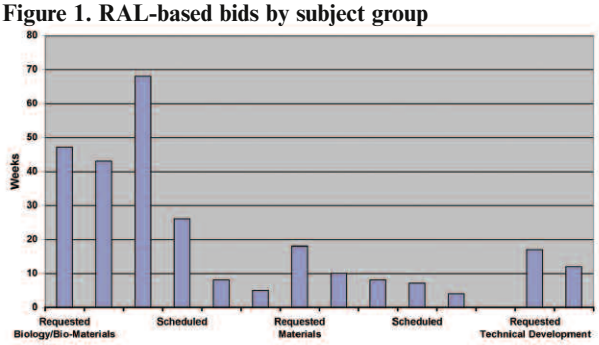

Figure 2. RAL-based experiments by subject

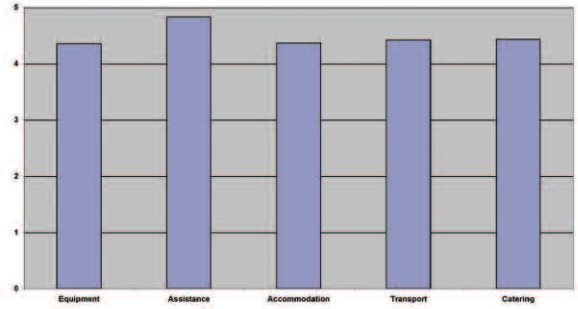

Figure 3. RAL-based average user satisfaction scores

Loan Pool

The Loan Pool delivered 390 weeks of laser time in the reporting period. Downtime was only 9 weeks and was mainly due to minor breakdowns throughout the year. The ratio of weeks applied v's scheduled was 1.3:1. The years activity saw 4 new groups to the Loan Pool. The chemistry community was once again the biggest user with 54% of allocated time. The breakdown is shown in figures 4 and 5. The Loan Pool schedule is shown in table 2. Two new lasers were installed into the Loan Pool one with extended UV capability down to 190 nm and the other a mid-band OPO laser allowing access to extended IR spectral region. The average User satisfaction marks are shown in figure 6. There were a total of 16 publications, 25 conference Presentations including posters, 1 PhD thesis published during the reporting year. A major highlight over the year was Prof John Simons (Oxford) receiving two major awards in recognition of his work, The Royal Society Davy Medal and Royal Society of Chemistry Liverside Medal and Lectureship.

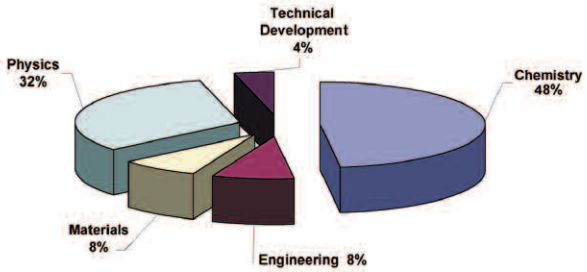

Figure 4. Loan Pool bids by subject group

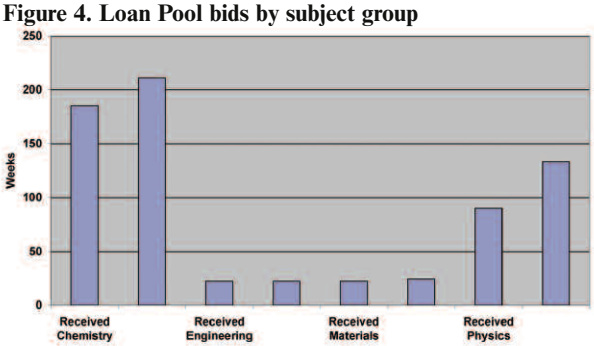

Figure 2. Loan Pool experiments by subject

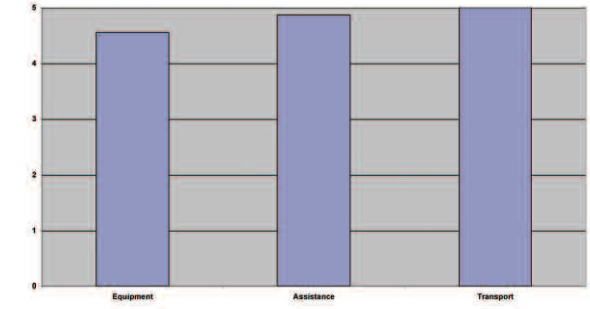

Figure 3. Loan Pool average user satisfaction scores

Date	Confocal Microscopy Laboratory	Raman Tweezers Laboratory	SNURF Laboratory	Ultrafast Spectroscopy Laboratory
Mar 26	Laser Installation			**K. REID** US31C2/06 (Nottingham) *Time-resolved photoelectron velocity-map imaging with improved resolution*
April 02				
April 09		**W. HUANG** CM10B1/07 (Oxford)		
April 16	MAINTENANCE	MAINTENANCE		
April 23				**P. MATOUSEK** US5B1/07 (CLF) *New chemically specific tomography method for non-invasive probing of tissue and powders*
April 30		**M. KING** CM4E1/07 (RHUL) *Oxidation of HuLIS in atmospheric aerosols*		
May 07				
May 14	**P. O'NEILL** CM5B1/07 (MRC) *Dynamics of assembly of repair proteins to genomic DNA damage*	**P. GARDNER** CM9MD1/07 (Manchester) *Combined optical tweezers and Raman spectroscopy for prostate cancer diagnosis*		**R. BISBY** US33B2/06 (Salford)
May 21				**T. DINES** *US1MT1/07* (Dundee) *Fundamental and applied studies of hyper-Raman scattering*
May 28	**D. PHILLIPS** CM11B1/07 (ICL) *Fluorescence lifetime imaging studies of cellular mechanism of PDT*			
June 04		**M. KING** CM4E1/07 (RHUL)		MAINTENANCE
June 11		**C. BAIN** CM1C1/07 (Durham) *Oil nanothreads*		**K. THOMPSON** US24B2/06 (Birbeck)
June 18				**A. VLCEK** US8C1/07 (QMUL)
June 25		**J. SANDERSON** CM6B1/07 (Durham) *Raman studies of membrane proteins and peptides*		**N. HUNT** US4C1/07 (Strathclyde) *Ultrafast 2D-IR study of hydrogenase enzyme model compounds*
July 02	**R. BISBY** CM2B1/07 (Salford) *Serotonin detection in biofluids*			
July 09		**C. BAIN** CM1C1/07 (Durham) *Oil nanothreads*		
July 16	**C. STUBBS** CM7B1/07 (Oxford)			
July 23	**P. O'NEILL** CM5B1/07 (MRC)			MAINTENANCE
July 30	MAINTENANCE	MAINTENANCE		**J. VAN THOR** US7B1/07 (Oxford) *FSRS of primary photoreception events*
Aug 06	**C. STUBBS** CM7B1/07 (Oxford)			
Aug 13		**J. SANDERSON** CM6B1/07 (Durham)		
Aug 20		**W. HUANG** CM10B1/07 (Oxford)		**M. WARD** US10C1/07 (Sheffield) *New ruthenium dyes for dye-sensitised solar cells: excited state and charge-injection dynamics*
Aug 27		**A. WAGNER** CM8B1/07 (Diamond)		
Sept 03	MAINTENANCE	MAINTENANCE		**K. RONAYNE** US12T1/07 (CLF) *Transient absorption microscopy*
Sept 10	**R. BISBY** CM2B1/07 (Salford)			
Sept 17				

Table 1. Lasers of Science Facility RAL-based Schedule Period 1 & 2 2007/08

Date	Confocal Microscopy Laboratory	Raman Tweezers Laboratory	SNURF Laboratory	Ultrafast Spectroscopy Laboratory
Sep 24				MAINTENANCE/PIRATE
Oct 01				N. HUNT (Strathclyde) 72,018 *Transient 2D-IR of hydrogenase enzyme system*
Oct 08				
Oct 15	P. O'NEILL (MRC) 72,036 *Title as 14-21 May*		SORS DEVELOPMENT	
Oct 22	M. KUIMOVA (IC) 72,035 *Cellular mechanism of photodynamic therapy with aluminium phthalocyanines*			
Oct 29				INTERLOCK INSTALLATION
Nov 05		P. GARDNER (MIB) 72,019 *Optical tweezers Raman spectroscopy of cell lines*		PIRATE UPGRADE
Nov 12				
Nov 19	MAINTENANCE			
Nov 26	R. BISBY (Salford) 72,001 *Intracellular serotonin*	MAINTENANCE	M. VOLK (Liverpool) 72,008 *UV resonance Raman studies of helical peptide structure*	T. WELLER (ISIS) 72,038 *Graphitisation of diamond using ultrafast lasers*
Dec 03	P. O'NEILL (MRC) 72,036	D. FAIRHURST (NTU) 72,014 *Microrheology of non-equilibrium polymer solutions*		
Dec 10	M. KUIMOVA (IC) 72,035			
Dec 17			P. MATOUSEK (CLF) 72,029	S. ELLIOTT (Cambridge) 72,007
Dec 24	CHRISTMAS & NEW YEAR			
Dec 31				
Jan 07	MAINTENANCE	MAINTENANCE	P. MATOUSEK (CLF) 72,029 *Laser radiation and Raman/fluorescence signal enhancement in deep spectroscopy of turbid media*	S. ELLIOTT (Cam) 72,007 *TA and fluorescence studies of chalcogenides*
Jan 14				A. DUTTON (STFC) 72,017 *Advanced spectroscopic techniques for the optimisation of photon-electrochemical hydrogen production*
Jan 21	M. TOWRIE (CLF) 72,040 *Optical tweezers "Acoustic Pack"*	P. GARDNER (MIB) 72,019 *Optical tweezers Raman spectroscopy of cell lines*		
Jan 28			M. VOLK (Liverpool) 72,008 *UV resonance Raman studies of helical peptide structure*	
Feb 04	C. STUBBS (OBU) 72,010	M. KING (RH) 72,031 *The uptake of amine on particles in the atmosphere*		
Feb 11	P. O'NEILL (MRC) 72,036			MAINTENANCE/PIRATE
Feb 18	R. BISBY (Salford) 72,001 *Intracellular imaging of serotonin*		T. WESS (Cardiff) 72,030 *Backbone and domain movements in the elastic response of fibrillin in situ*	S. MEECH (UEA) 72,022 *Unravelling mechanisms in blue light sensing proteins*
Feb 25		MAINTENANCE		
Mar 03	C. STUBBS (OBU) 72,010 *Imaging cell membrane dynamics*	A. WARD (CLF) 72,037 *Target delivery using optical levitation*		
Mar 10			S. BELL (Belfast) 72,004 *UV Raman of biopharmaceutical protein formulations*	J. VAN THOR (IC) 72,025 *Photoselection and photoreversibility in the photocycle of the phytochrome photoreceptor*
Mar 17				
Mar 24	P. O'NEILL (MRC) 72,036			

Table 1. Lasers of Science Facility RAL-based Schedule Period 1 & 2 2007/08 (continued)

Date	NSL1 YAG/Dye Powerlite + Sirah + SHG + DFG	NSL2 Compact YAG/Dye Surelite III-10 + Sirah + SHG	NSL3 Compact YAG/Dye Surelite III-10 + Sirah + SHG	NSL4 YAG/Dye Powerlite + Sirah + SHG	NSL5 YAG/Dye Spectra Pro + Sirah + SHG	UFL1 Coherent Verdi/Mira + SHG + THG	UFL2 Coherent Libra OPerA Ultrafast Amp + OPA	CWL1 Frequency Doubled Argon Ion
Feb 26					J. Weinstein	V. Stavros	J. Wu	
Mar 05		L. Snoek				(Warwick)	(York)	
Mar 12		(Oxford)						
Mar 19		LP8C1/07						
Mar 26		Install new						
Apr 02		NSL2 system						
April 09								M. Mailis
April 16								(Southampton)
April 23								*UV Laser*
April 30				M. Hippler				*direct*
May 07	I. Walmsley			(Sheffield)		M. Cham-		*writing of*
May 14	(Oxford)			*New*		berlain		*ferroelectric*
May 21	*Attosecond*	L. Snoek	A. Hudson	*exploratory*	G. Hancock	(Durham)	A. Hodgson	*domain*
May 28	*pulse*	(Oxford)	(Bristol)	*experiments*	(Oxford)	*Terahertz*	(Liverpool)	*inverted*
June 04	*generation*	*Conformation*	*Photo-*	*for the*	*Novel*	*frequency*	*Hot*	*structures*
June 11	*via*	*of the total*	*chemistry of*	*infrared and*	*experiments*	*scattering &*	*electron*	*in single*
June 18	*stimulated*	*penta-*	*porphyrins*	*Raman laser*	*in reaction*	*plasmonic*	*induced*	*crystal*
June 25	*Raman*	*saccharide*	*in the gas*	*spectroscopy*	*dynamics*	*probe*	*surface*	*lithium*
July 02	*scattering*	*core of*	*phase*	*in the gas*	LP3C1/07	*studies*	*reactions*	*niobate*
July 09	LP1P1/07	*N-linked*	LP6C1/07	*phase and in*		LP2P1/07	LP5C1/07	LP12M1/07
July 16		*glycoproteins*		*solutions*				
July 23		LP8C1/07		LP4C1/07				
July 30								
Aug 06								
Aug 13								
Aug 20								
Aug 27								
Sep 03								
Sep 10								
Sep 17								
Sep 24								
Oct 01								
Oct 08								
Oct 15								
Oct 22								
Oct 29								
Nov 05	I. Walmsley	L. Snoek						
Nov 12	(Oxford)	(Oxford)			G. Hancock		A. Hodgson	
Nov 19	*Attosecond*	*Probing*	S. Elliott		(Oxford)		(Liverpool)	
Nov 26	*pulse*	*carbohydrate*	(Cambridge)		*Vibrational*		*Surface*	
Dec 03	*generation*	*-protein*	*Investigating*	S. Hochgreb	*emission*		*dynamics*	
Dec 10	*via*	*recognition*	*the physical,*	(Cambridge)	*from*		*initiated*	J. Weinstein
Dec 17	*stimulated*	*interactions*	*structural*	*CO/NO*	*electronic*		*by hot*	(Sheffield)
Dec 24	*Raman*	*using infrared*	*and optical*	*laser induced*	*quenching*		*electrons*	*Resonance*
Dec 31	*scattering*	*spectroscopy*	*properties of*	*fluorescence*	72,002	J. Wu	72,012	*Raman*
Jan 07	72,024	72,003	*chalcogenide*	72,005		(York)		*insight into*
Jan 14			*glasses*			*Ultrafast spin*		*electronic*
Jan 21			72,006			*dynamics*		*structure of*
Jan 28						*in heat-*		*photo-,*
Feb 04						*assisted*		*solvato- and*
Feb 11						*magnetic*		*electro-*
Feb 18						*recording*		*chromic*
Feb 25						72,043		*metal-based*
Mar 03								*molecular*
Mar 10								*systems*
Mar 17								72,045

Table 2. Lasers of Science Facility Loan Pool Schedule Period 1 & 2 2007/08