

PROGRAMME QEM 2005

WEEK 1 : 25th to 30th September		
Sun 25	14:00	Afternoon till early evening arrival and welcome
	18:00	Bus #1 departure from Saint Raphaël station to centre
	19:30	Bus #2 departure from Saint Raphaël station to centre
	20:00	Dinner
Mon 26	8:50	Introduction to the school E. Snoeck
	9:00	Image Planes and Ray Optics J.-P. Morniroli
	10:30	Coffee break
	11:00	Introduction to Wave Optics P. Formanek
	12:30	Lunch
	16:00	Simulation in electron microscopy: theory and uses P. Stadelmann
	17:30	Pause
	18:00	Practical # 1: wave/ray
	20:00	Dinner
Tue 27	9:00	Quantitative HREM M. J. Hÿtch
	10:30	Coffee break
	11:00	Practical # 2: GPA, GPA, JEMS, FIB
	12:30	Lunch
	16:00	Practical # 3: GPA, GPA, JEMS, FIB
	18:00	Electron detectors and image acquisition A. Kirkland
	20:00	Dinner
Wed 28	9:00	New instrumentation: Cs correctors, monochromators, filters P. Hartel
	10:30	Coffee break
	11:00	Cs corrected HREM and exit wave function reconstruction A. Kirkland
	12:30	Lunch
	16:00	Practical # 4: Cs, Cs, JEMS, instrumentation
	18:00	Practical # 5: Cs, Cs, JEMS, instrumentation
	20:00	Dinner
	21:30	Round-table: Mega TEM E. Snoeck & C. Hetherington
Thu 29	9:00	Quantitative elemental analysis, ELNES and Low Loss G. Botton
	10:30	Coffee
	11:00	Elemental mapping and electronic states mapping Jo Verbeeck
	12:30	Lunch
	16:00	Practical # 6: EELS, EFTEM, CCD, instrumentation
	18:00	Practical # 7: EELS, EFTEM, CCD, instrumentation
	20:00	Banquet
Fri 30	9:00	Statistical parameter estimation and application to EM S. Van Aert
	10:30	Coffee
	11:00	In situ experiments and environmental TEM S. Giorgio & F. Phillipp
	12:30	Lunch
	16:00	Practical # 8: EELS, EFTEM, Analysis, in situ, opt: HREM3
	18:00	Practical # 9: EELS, EFTEM, Analysis, in situ, opt:HREM3
	20:00	Dinner
Sat 1		Free time, lunch, dinner
Sun 2		Free time, lunch
	19:00	Before-dinner talk "EELS of nanotubes: inside and out" O. Stéphan
	20:00	Dinner

		WEEK 2 : 3rd to 7th October
Mon 3	9:00	Medium-resolution electron holography R. Dunin-Borkowski
	10:30	Coffee
	11:00	High-resolution electron holography H. Lichte
	12:30	Lunch
	16:00	Practical # 10: Holo HR, Holo MR, Analysis, in situ, opt: EELS3
	18:00	Practical # 11: Holo HR, Holo MR, Analysis, in situ, opt: EELS3
	20:00	Dinner
Tue 4	9:00	Composition mapping by annular dark-field Th. Walther
	10:30	Coffee
	11:00	High-resolution imaging by high angle annular dark-field M. Ceh
	12:30	Lunch
	16:00	Practical # 12: Holo HR, Holo MR, Multi, HA-ADF, opt: eTEM
	18:00	Practical # 13: Holo HR, Holo MR, Multi, HA-ADF, opt: eTEM
	20:00	Dinner
	21:30	Round-table: TEM vs STEM C. Colliex & H. Lichte
Wed 5	9:00	Quantitative electron crystallography R. Holmestad
	10:30	Coffee
	11:00	Large angle convergent beam diffraction J.P. Morniroli
	12:30	Lunch
	16:00	Practical # 14: CBED, QED, Tomo, HA-ADF, opt: Multi
	18:00	Practical # 15: CBED, QED, Tomo, HA-ADF, opt: Multi
	20:00	Dinner
Thu 6	9:00	Electron tomography: theory and practise P. Midgley
	10:30	Coffee
	11:00	Modeling methods for electron microscopy: MD, FE, ab initio L. Calmels
	12:30	Lunch
	16:00	Practical # 16: CBED, QED, Tomo, FIB
	18:00	Practical # 17: CBED, QED, Tomo, FIB
	20:00	Dinner
	21:30	Round-table: QEM School 1 & 2 ? E. Snoeck et al.
Fri 7	9:00	FIB advanced specimen preparation R. Langford
	10:30	Coffee
	12:30	Lunch
	13:00	Bus #1 departure for Saint Raphaël station
		END

PRACTICALS

Practicals are 1½ hours in duration

Each practical will be for a group of 25 students

Title	Room	Practical Class
wave/ray	Video ¹	Wave Optics/ Ray Tracing M. Lehmann, J.-P. Morniroli, D. Jacob
GPA	Comp ²	Strain mapping M. J. Hýtch, J.-L. Rouvière
Cs	Comp	Software Cs-correction by focal series reconstruction C. Hetherington, A. Kirkland
JEMS	Video	Simulation with JEMS P. Stadelmann
FIB	Video	Advanced specimen preparation R. Langford
Inst	Video	Cs correctors, monochromators, imaging filters P. Hartel
EELS	Comp	Quantitative elemental analysis and ELNES O. Stéphan, J. Verbeeck, V. Serin
EFTEM	Comp	Elemental mapping, electronic states mapping (STEM, EFTEM) W. Sigle, M.G. Walls, P. Bayle-Guillemaud
CCD	Video	Characterising and calibrating CCD detectors A. Kirkland
Holo HR	Comp	Practical high-resolution holography M. Lehmann, H. Lichte
Holo MR	Comp	Practical aspects of magnetic & electric field determination R. Dunin-Borkowski, P. Formanek, E. Snoeck
QED	Comp	Simulation of dynamic CBED patterns and comparison with experiment Ch. Koch
CBED	Comp	Strain and lattice parameter determination by CBED D. Jacob
HA-ADF	Video	ADF/HAADF Th. Walther
Tomo	Video	Tomography P. Midgley, S. Bals
in situ	Video	Nanolab experiments (AFM in TEM, applying fields, heating) M. Kociak
Analysis	Video	Statistical parameter estimation S. Van Aert
HREM3	Option ³	Q-HREM image analysis M.J. Hýtch
EELS3	Option	Low-loss energy spectroscopy S. Schamm, O. Stéphan, V. Serin
Multi	Option	Processing/Analysis of multi-component images and spectrum images N. Bonnet
eTEM	Option	Environmental TEM S. Giorgio, M. Kociak

¹ **Video** means the practical will be in a room equipped with a video projector. The practical can be a demonstration, discussion or worked examples on paper

² **Comp** means the practical will be in a room with 13 PCs, two students per PC

³ **Option** means a practical chosen by inscription, in place of the main practical sessions

PROGRAMME PRACTICAL SESSIONS

		Rooms	Comp 1	Comp 2	Video 3	Video 4	Optional
		Groups	Orange	Blue	Yellow	Grey	
Mon 26							
	18h	Practical #1	Wave	Wave	Ray	Ray	
Tue 27	11h	Practical #2	GPA	Cs	JEMS	FIB+	
	16h	Practical #3	GPA	Cs	JEMS	FIB+	
Wed 28	16h	Practical #4	GPA	Cs	JEMS	Inst	
	18h	Practical #5	GPA	Cs	JEMS	Inst	
Thu 29	16h	Practical #6	EELS	EFTEM	CCD	Inst	
	18h	Practical #7	EELS	EFTEM	CCD	Inst	
Fri 30	16h	Practical #8	EELS	EFTEM	analysis	in situ	HREM 3
	18h	Practical #9	EELS	EFTEM	analysis	in situ	HREM 3
Weekend							
Mon 3	16h	Practical #10	Holo HR	Holo MR	analysis	in situ	EELS 3
	18h	Practical #11	Holo HR	Holo MR	analysis	in situ	EELS 3
Tue 4	16h	Practical #12	Holo HR	Holo MR	Multi	HA-ADF	eTEM
	18h	Practical #13	Holo HR	Holo MR	Multi	HA-ADF	eTEM
Wed 5	16h	Practical #14	CBED	QED	Tomo	HA-ADF	Multi
	18h	Practical #15	CBED	QED	Tomo	HA-ADF	Multi
Thu 6	16h	Practical #16	CBED	QED	Tomo	FIB+	
	18h	Practical #17	CBED	QED	Tomo	FIB+	
Fri 7							