



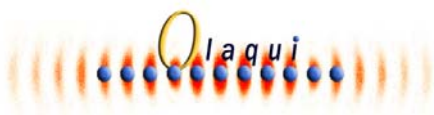
FP6-511057 OLAQUI

Optical Lattice and Quantum Information

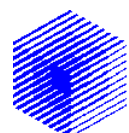
OLAQUI

Coordinator: Ennio Arimondo
INFM, Università di Pisa, Italy

<http://olaqui.df.unipi.it>



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IST-2001-32264 OLAQUI

Project partners:

1. CNR-INFN, Univ. Pisa, Italy
2. JOGU, Univ. Mainz, Germany
3. ETH, Zurich, Switzerland
4. ÖAW, Univ. Innsbruck,
Academy of Sciences
5. Oxford, Univ. Oxford, Great Britain



Project duration:

42 months started Feb. 2005

Project total EC fundings:

1800 kEuro

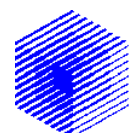
Over 350 man/months employed

15 Scientific Deliverables

7 WorkPackages



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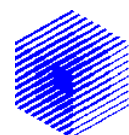
Deliverables and Milestones 3rd Period

Table 1: Deliverables List

Del. no.	Deliverable name	WP no.	Date due (mo)	Actual delivery date	Lead contractor	Nature	Dissemination
D5	Addressing single sites of an optical lattice	2	42th	42th	3	R	PP
D7	Novel theoretical two-qubit gate schemes	3	42th	42th	4	R	PU
D8	Experimental generation of multiparticle entanglement	4	30th	42th	2	R	PP
D9	Measures and measurements procedures for multiparticle entanglement	4	42th	42th	2	R	PP
D11	Experimental realization of optical lattices with minimized decoherence	5	42th	42th	2	R	PU
D13	Experimental quantum simulation of simple models	6	42th	42th	4	R	PU
D15	Threshold for fault-tolerant quantum computation, using entanglement purification as a primitive	7	42th	42th	5	R	CO



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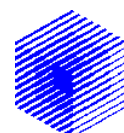


OLAQUI Publications

1st Reporting Period	
Nature, PRL, Science	15
JPB, NJP, PRA	17
Others	1
Submitted	15
Invited Talks	58
2nd Reporting Period	
Nature, PRL, Science	12
JPB, NJP, PRA	18
Others	6
Submitted	18
Invited Talks	43
3rd Reporting Period	
Nature, Science	3
PRL	14
NJP	8
PRA,PRB	8
Others	3



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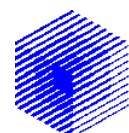
Personnel

Table 4: Person-Months Status Table

CONTRACT N°: FP6-511057		Partner - Person-month per WP					AC - own staff						
ACRONYM: OLAQUI													
PERIOD: 1/2/2005-31/7/2006													
		TOTALS	PIS-CNR-INFM	JGUM	ETHZ	ÖAW-UIBK	OXF	AC TOTALS	PIS-CNR-INFM	JGUM	ETHZ	ÖAW-UIBK	OXF
Workpackage 1:	Actual WP total:	38,5	14,0	8,0	3,0	3,5	10,0	18,5	8,0	0,0	8,0	0,5	2,0
Preparation/Initialization Quantum Register	Planned WP total:	33,0	9,0	9,0	9,0	4,0	2,0	0,0					
Workpackage 2:	Actual WP total:	52,5	31,5	2,0	13,0		6,0	40,5	17,0	6,0	14,0	1,5	2,0
Addressing, manipulating on single sites	Planned WP total:	40,0	12,0	8,0	12,0	4,0	4,0	0,0					
Workpackage 3:	Actual WP total:	41,5	27,0	4,0	2,0	5,5	3,0	44,5	10,0	13,0	12,0	4,5	5,0
Two-qubit gates and compatible stable qubits	Planned WP total:	90,0	18,0	18,0	18,0	18,0	18,0	0,0					
Workpackage 4:	Actual WP total:	23,5	2,0	2,0	2,0	0,5	17,0	60,0	0,0	13,0	8,0	8,0	31,0
Multi-particle entangled states	Planned WP total:	46,0	6,0	12,0	4,0	12,0	12,0	0,0					
Workpackage 5:	Actual WP total:	30,0	11,0	0,0	6,0	1,0	12,0	47,5	0,0	7,0	16,0	9,5	15,0
Strategies for minimizing decoherence	Planned WP total:	44,0	8,0	8,0	8,0	12,0	8,0	0,0					
Workpackage 6:	Actual WP total:	42,0	15,0	0,0	6,0	7,0	14,0	50,5	3,0	9,0	12,0	4,5	22,0
Quantum simulator	Planned WP total:	51,0	6,0	9,0	9,0	18,0	9,0	0,0					
Workpackage 7:	Actual WP total:	8,0	0,0	0,0	0,0	8,0	0,0	9,5	0,0	0,0	0,0	6,5	3,0
New strategies for quantum computers	Planned WP total:	36,0	0,0	0,0	0,0	24,0	12,0	0,0					
Workpackage 8:	Actual WP total:	17,5	16,5	0,0	0,0	0,0	1,0	7,0	1,0	0,0	3,0	3,0	0,0
Management	Planned WP total:	17,0	7,0	2,0	2,0	4,0	2,0	0,0					
Actual total:		253,5	117,0	16,0	32,0	25,5	63,0	278,0	39,0	48,0	73,0	38,0	80,0



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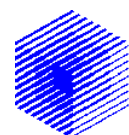


Budget

Contract N°		13501	Acronym: Olacui				Date:		
PARTICIPANTS	TYPE of EXPENDITURE (as defined by participants)	BUDGET	ACTUAL COSTS (EUR)				Year 3	Remaining Budget (EUR)	
			Period 1	Period 2	Period 3	Total			
			a1	b1	c1	e1			
		e	a1+b1+c1/e				e-e1		
Part1 CNR-INFM	Total Person-mor	67	43	41	33	117	175%	-50	
	Personnel costs	225500	103.524,60	58583,05	51205,42	213313,07	95%	12186,93	
	TRAVELS	10000	3.036,35	3.500,58	7051,61	13588,54	136%	-3588,54	
	CONSUMABLES	76200	50.658,98	37.841,45	33538,78	122039,21	160%	-45839,21	
	DURABLE EQUIP	50000	8.399,16	10.561,98	11108,97	30070,11	60%	19929,89	
	Management	46000	11.868,76	15.485,57	18783,41	46137,74	100%	-137,74	
	Other costs ('the	72300	33.123,82	22.097,41	20580,96	75802,19		-3502,19	
	Total Costs	480000	210611,668	148070,042	142269,15	500950,86	104%	-20950,86	
Part2: JGUM	Total Person-mor	66	16	26	2,5	44,5	67%	21,5	
	Personnel costs	166000	50386,02	115749,17	6885,72	173020,91	104%	-7020,91	
	CONSUMABLES	160000	77629,15	46103,6	44698,94	168431,69	105%	-8431,69	
	DURABLE EQUIP	15000	6042,63	7383,33	7552,88	20978,84	140%	-5978,84	
	Travel	30000	1647,47	6483,65	2299,65	10430,77	35%	19569,23	
	Management	4000	1104,56	961,8	1324,4	3390,76	85%	609,24	
	Other costs ('the	75000	27141,05	35336,31	12352,32	74829,68	100%	170,32	
	Total Costs	450000	163950,88	212017,86	75113,91	451082,65	100%	-1082,65	
Part3: ETH	Total Person-mor	62	9	13	11	33	61%	29	
	Personnel costs	100000	33731,56	53254,03	39024,72	126010,31	126%	-26010,31	
	Travels	7600	2745,12	454,93	226,02	3426,07	45%	4173,93	
	Large Consumab	58000	25513,36	13832,62	3509,8	42855,78	74%	15144,22	
	Major Optical Cor	100000	40370,9	19375,21	15210,1	74956,21	75%	25043,79	
	Other Consumab	60000	22.308,85	15266,38	1332,85	38.908,08	65%	21091,92	
	DURABLE EQUIP	120000	39.595,65	50088,42	39430,41	129.114,48	108%	-9114,48	
	Other costs ('the	4400	16.426,54	15227,16	11583,71	43237,41	983%	-38837,41	
	Adjustment(*)	0	0,00	0	1558,24	1558,24	#DIV/0!	-1558,24	
	Total Costs	450000	180691,98	167498,75	111875,85	460066,58	102%	-10066,58	
Part4: ÖAW	Total Person-mor	96	40,5	42,5	13	96	100%	0	
	Personnel costs	212400	108076,8	87615,5	11016,98	206709,28	97%	5690,72	
	TRAVELS	16000	7729,16	5215,55	0	12944,71	0%	3055,29	
	management	6000	0	1389,67	1281,1	2670,77	45%	3329,23	
	Other costs ('the	45600	23161,18	18566,21	2301,92	44029,31	97%	1570,69	
	CONSUMABLES				492,62				
	Adjustment(*)				1511,85				
	Total Costs	280000	138967,14	112786,93	16604,47	268358,54	96%	11641,46	
Part 5: OX	Total Person-mor	67	13	14	36	63	94%	4	
	Personnel costs	97500	18825,51	26725,47	43514,63	89065,61	91%	8434,39	
	Durable equipme	7000	3111,98	-555,48	1281,97	3838,47	55%	3161,53	
	travel costs	4000	1684,53	1766,23	1532,73	4983,49	125%	-983,49	
	consumables	4000	0	444,59	6204,23	6648,82	166%	-2648,82	
	Management	5000	0	987,28	0	987,28	0%	4012,72	
	Other costs ('the	22500	4724,4	5676,76	10506,71	20907,87	93%	1592,13	
	Total Costs	140000	28346,42	35044,85	63040,27	126431,54	90%	13568,46	
	Total Costs	#####	722.568,09	675.418,43	408.903,65	1.806.890,17	100%	-6.890,17	



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Additional expenses

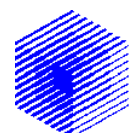
Tabular overview of additional expenses by contractor

Contractor	Cost (Euros)
PI-CNR-INFM	
Permanent Personnel Salaries	90000
Consumables Minister of Education Project	20000
Total	110000
JGUM	
Personnel Salaries	132000
Consumables	40000
Durables (HBFG Grant)	107500
Total	279500
ETHZ	
Personnel Salaries	1100000
Consumables	25000
Durables	90000
Total	225000
ÖAW-UIBK	
Permanent Personnel Salaries	16600
FWF – SFB salaries	13500
Austrian Academy of Sciences, salaries	13600
Total	43700
OXF	
Salaries and stipends	101000
Consumables	5800
Durables	40600
Total	147400

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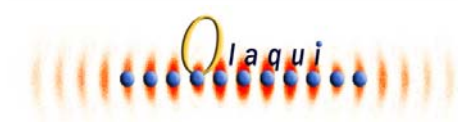
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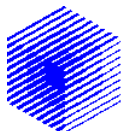


Initiator bank charges

	Payments by Coordinator (EUR)	Bank Charges (EUR)	Net amount received by partner (EUR)
JGUM			
1st Advance Oct. 2005	180000.00	270.30	179713.7
1st Refund Oct. 2007	172459.29	280.19	172079.1
2nd Refund May2008	43617.6	?	
Total		550.49	
ETHZ			
1st Advance Oct. 2005	180000.00	286.30	179713.7
1st Refund Oct. 2007	172459.29	280.19	172178.6
2nd Refund May2008	43617.6	80.90	43536.67
Total		648.92	
UIBK			
1st Advance Oct. 2005	180000.00	?	
1st Refund Oct. 2007	107380.00	185.06	107194.94
2nd Refund May2008	2719.83	?	
Total		185.06	
OXF			
1st Advance Oct. 2005	-	?	
1st Refund Oct. 2007	53654.00	?	
2nd Refund May2008	13569.92	?	
Total		?	



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Bank charges

PARTICIPANTS

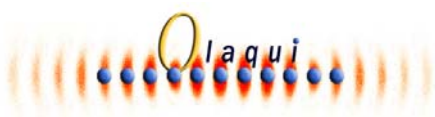
Part1: CNR-INFM

Part2: JGUM

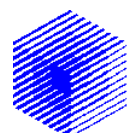
Part3: ETHZ

Part4: ÖAW- UIBK

Part 5: OXF



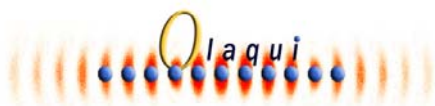
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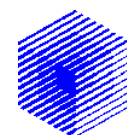


Total expenses

Contract N°:		Acronym: Olaqui				Date:			
PARTI-CIPANTS		BUDGET	ACTUAL COSTS (EUR)				Year 3	Remaining Budget (EUR)	
TYPE of EXPENDITURE (as defined by participants)		e	Period 1 a1	Period 2 b1	Period 3 c1	Total e1	a1+b1+c1/e	e-e1	
*) total budget figures - not EC funding									
Part1 CNR-INFM		Total Person-month	67	43	41	33	117	175%	-50
		Personnel costs	225500	103,524.60	58583.05	51205.42	213313.07	95%	12186.93
		TRAVELS	10000	3,036.35	3,500.58	7051.61	13588.54	136%	-3588.54
		CONSUMABLES	76200	50,658.98	37,841.45	33538.78	122039.21	160%	-45839.21
		DURABLE EQUIPMENT	50000	8,399.16	10,561.98	11108.97	30070.11	60%	19929.89
		Management	46000	11,868.76	15,485.57	18783.41	46137.74	100%	-137.74
		Other costs (the re	72300	33,123.82	22,097.41	20580.96	75802.19		-3502.19
		Total Costs	480000	210611.668	148070.042	142269.15	500950.86	104%	-20950.86
Part2: JGUM		Total Person-month	66	16	26	2.5	44.5	67%	21.5
		Personnel costs	166000	50386.02	115749.17	6885.72	173020.91	104%	-7020.91
		CONSUMABLES	160000	77629.15	46103.6	44698.94	168431.69	105%	-8431.69
		DURABLE EQUIPMENT	15000	6042.63	7383.33	7552.88	20978.84	140%	-5978.84
		Travel	30000	1647.47	6483.65	2299.65	10430.77	35%	19569.23
		Management	4000	1104.56	961.8	1324.4	3390.76	85%	609.24
		Other costs (the re	75000	27141.05	35336.31	12352.32	74829.68	100%	170.32
		Total Costs	450000	163950.88	212017.86	75113.91	451082.65	100%	-1082.65
Part3: ETHZ		Total Person-month	62	9	13	11	33	61%	29
		Personnel costs	100000	33731.56	53254.03	39024.72	126010.31	126%	-26010.31
		Travels	7600	2745.12	454.93	226.02	3426.07	45%	4173.93
		Large Consumable	58000	25513.36	13832.62	3509.8	42855.78	74%	15144.22
		Major Optical Com	100000	40370.9	19375.21	15210.1	74956.21	75%	25043.79
		Other Consumable	60000	22,308.85	15266.38	1332.85	38,908.08	65%	21091.92
		DURABLE EQUIPMENT	120000	39,595.65	50088.42	39430.41	129,114.48	108%	-9114.48
		Other costs (the re	4400	16,426.54	15227.16	11583.71	43237.41	983%	-38837.41
		Adjustment(*)	0	0.00	0	1558.24	1558.24	#DIV/0!	-1558.24
		Total Costs	450000	180691.98	167498.75	111875.85	460066.58	102%	-10066.58
Part4:...AW- UIBK		Total Person-month	96	40.5	42.5	13	96	100%	0
		Personnel costs	212400	108076.8	87615.5	11016.98	206709.28	97%	5690.72
		TRAVELS	16000	7729.16	5215.55	0	12944.71	0%	3055.29
		management	6000	0	1389.67	1281.1	2670.77	45%	3329.23
		Other costs (the re	45600	23161.18	18566.21	2301.92	44029.31	97%	1570.69
		CONSUMABLES				492.62			
		Adjustment(*)				1511.85			
		Total Costs	280000	138967.14	112786.93	16604.47	268358.54	96%	11641.46
Part 5: OXF		Total Person-month	67	13	14	36	63	94%	4
		Personnel costs	97500	18825.51	26725.47	43514.63	89065.61	91%	8434.39
		Durable equipment	7000	3111.98	-555.48	1281.97	3838.47	55%	3161.53
		travel costs	4000	1684.53	1766.23	1532.73	4983.49	125%	-983.49
		consumables	4000	0	444.59	6204.23	6648.82	166%	-2648.82
		Management	5000	0	987.28	0	987.28	0%	4012.72
		Other costs (the re	22500	4724.4	5676.76	10506.71	20907.87	93%	1592.13
		Total Costs	140000	28346.42	35044.85	63040.27	126431.54	90%	13568.46
		Total Costs	1,800,000.00	722,568.09	675,418.43	408,903.65	1,806,890.17	100%	-6,890.17



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PARTICIPANTS	BUDGET	REMAINING BUDGET
Part1: CNR- INFM	480.000	-20.950,86
Part2: JGUM	450.000	-1.082,65
Part3: ETHZ	450.000	-10.066,58
Part4:ÖAW- UIBK	280.000	11.641,46
Part 5: OXF	140.000	13.568,46



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