



ASPERA Common Call

ET R&D

Networking and R&D for the Einstein Telescope



Meeting Minutes

WP1	WP2	WP3	WP4	MC	GM	Other
				X		

Title of the Meeting:	First Management Committee Meeting, Telecon,
hyperlink:	
Date:	13/06/2014
Location (or phone)	phone

Participants

01	Harald Lück (author of the notes)	02	Andreas Freise
03	Ronny Nawrodt	04	Stuart Reid
05	Iain Martin	06	Tomasz Bulik
07	Michele Punturo	08	Matteo Barsuglia
09	Jo v.d. Brand	10	Matyas Vasuth
11		12	
13		14	
15		16	
17		18	
19		20	

Agenda:

1. MC attendees
2. MOU status
3. reports of the WG chairs on work progress, status of the WGs and finances.
4. reporting duties as deliverables and towards APPEC.
5. AOB

1.) The number of participants was above the 3/5 required minimum for a quorum.

The proposed composition of the MC was confirmed by the members present in the meeting:

PC: Harald Lück

DPC: Michele Punturo (as agreed @ 1st MC meeting)

WG chairs: Sathyaprakash, J. v.d. Brand, R. Nawrodt, A. Freise

Parties:

Gottfried Wilhelm Leibniz Universität Hannover: covered by PC

Friedrich-Schiller-Universität Jena: covered by WG chair

The University Court of the University of Glasgow: Iain Martin

The University of the West of Scotland: Stuart Reid

Cardiff University: covered by WG chair

The University of Birmingham: covered by WG chair

Stichting Voor Fundamenteel Onderzoek der Materie: covered by WG chair

The Russian Einstein Telescope Consortium: V. Rudenko

The Polish Einstein Telescope Consortium: Th. Bulik

The Hungarian Einstein Telescope Consortium: I. Racz

The Italian Einstein Telescope Collaboration: covered by DPC

Representative of France: M. Barsuglia

Matteo Barsuglia was confirmed as a permanent representative of France.

2: MOU Status:

The MOU signature process is close to completion. Tomasz has got the agreement of all administrations involved in the Polish Consortium and expects the signed document any day now.

Once the last signature page has been sent to Hannover, Harald will assemble a version including all signature pages and send it to all members of the management committee, would then can distribute the file to their administrations.

3.) Status of the working groups

Working group 1: ET's scientific potential:

Sathyaprakash could not participate in this meeting because he was chairing another parallel teleconference.

Working group 2: long-term seismic and GGN studies of selected sites

Jo v.d. Brand reported on the status of the working group. The task described in the proposal for the past year was the definition and development of seismic sensors. This work has mainly happened in Poland and the Netherlands. First prototypes have been

realised, which will be characterised and calibrated soon. This work should be finished soon and will yield good seismic sensors at low cost. It is foreseen to equip each site with 5 to 6 sensors. Cite studies will be done in Hungary, Sardinia, Canfranc, Finland, the Netherlands, and Poland, resulting in a total number of about 30 sensors. If commercial sensors would be used the financial requirements would amount to about 0.5 M€. Two different prototypes have been finished at Nikhef and in Poland. The Netherlands are closely collaborating with industry, which increases the importance of intellectual property issues.

Characterisation and calibration will start in about two weeks time. The selection of measurement sites and the measurements themselves will start in the second half of this year. The overlap with the currently ongoing activities for a proposal within the Horizon 2020 program should not pose a problem.

Working group 3: optical properties of silicon at cryogenic temperatures

Ronny Nawrodt reported on the status of this working group.

See copies of the presentation slides attached to the end of this document

Working group 4: ET control systems

Andreas Freise reported on the status of this working group.

The task of this working group is to design control schemes for squeezed, light the low-frequency part of ET, and the reduction of correlated noise sources in the co-located interferometers and detectors.

The working group consisting of members from Glasgow, Birmingham, and Hannover held regular teleconferences and so far prepared the simulation tools to model what has been promised in the proposal.

The software FINESSE now includes the simulation of radiation pressure effects and squeezing in addition to the functionality it offered so far. This paves the path to perform the proposed simulations. More concrete steps will follow soon. The milestones of this working group are all towards the end of the project, resulting in no delay at the moment.

It was suggested that for the publishable part of the half term report we should get in contact with the APPEC PR people to get some advice.

With ET R&D being the only current ET activity beside ELiTES, we should spread the word within the project that there will be the ET general meeting held in Lyon on November 19/20.

Status WG3

ET R&D

13/06/2014

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Reminder – content of WG3

- WG3 – Optical properties of silicon at cryogenic temperatures
- Participants: FSU, LUH-AEI, UGlasgow, UWS, Russian Consortium, (LMA – as external/non-beneficiary)
- Task 1: Stress induced birefringence of silicon-based optics
- Task 2: Homogeneity of optical properties within larger samples
- Task 3: Surface quality of large silicon samples
- Task 4: Investigation of Whispering Gallery Mode Oscillators made of silicon to probe absorption and scatter

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Timeline

WG	Description	Year 1												Year 2												Year 3												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
3	Homogeneity of optical parameters in silicon	█													█												█											
	Setup for birefringence in silicon at 1550 nm	█						█												█																		
	Study of birefringence in coatings and bulk materials	█												█												█												
	Investigation of the surface quality of large silicon	█												█												█												
	absorption and scattering measurements with WGM	█												█												█												
	cavity studies at low temperatures	█												█												█												

Tasks promised by now:

- Homogeneity of optical parameters (1)
- Setup for birefringence measurements
- Investigations of the surface quality
- Abs/scatter in WGM
- Cavity studies at low temperatures

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Status of the individual groups

- FSU
 - survey of homogeneity of electronical parameters in larger samples
 - temperature dependence of these paramters
 - potential new noise sources in silicon
 - calorimetric optical absorption measurements

- study of surface loss in silicon

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Status of the individual groups

- LUH-AEI
 - first measurements on stress induced birefringence in a cavity setup
 - demonstration of the capabilities of the setup
 - application of external loads possible

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Status of the individual groups

- UGlasgow
 - development of NIR polarimeter
 - first tests underway

- absorption measurements in silicon

- study of surface loss in silicon

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Status of the individual groups

- UWS
 - Postdoc working on coating techniques
 - hydrogenated aSi films
 - FTIR measurements -> probe for free carrier abs

 - development of highly stressed films -> interaction with silicon birefringence

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Status of the individual groups

- Russian consortium
 - see Valentins contribution

 - activities on cavity finesse at low temperatures, WGM resonators

 - additionally: joint work on noise in silicon with all other WG3 members

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Status of the individual groups

- LMA (as external)
 - systematic absorption measurements
 - both cryogenic/room temperature

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Milestones

Table 6-2 – Milestones in the order of expected date

Milestone #	Milestone	WP involved	Expected date
MS 5.1	Election of legal structures of ET-R&D (management)	1-5	M1
MS 3.1	Birefringence setup ready for coating investigation	3	M7
MS 2.1	Prototype seismometer	2	M9
MS 1.1	Mock data and codes available for use	1	M12
MS 3.2	Study in homogeneity of absorption and dn/dT finished	3	M15
MS 1.2	Search and inference algorithms	1	M18
MS 3.3	Sample holder to apply desired stress to bulk samples	3	M18
MS 3.4	Birefringence setup ready for bulk investigations	3	M18
MS 4.1	Design of control loop for signal recycling for ET-LF	4	M19
MS 2.2	Delivery of seismometers	2	M20
MS 3.5	Combination of birefringence setups and cryostats finished	3	M22

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Deliverables

Table 6-3 – Deliverables in the order of date

Deliverable #	Deliverable	WP involved	Date of delivery
D 1.1	Annual WG report	1	M12
D 2.1	Annual WG report	2	M12
D 3.1	Annual WG report	3	M12
D 4.1	Annual WG report	4	M12
D 5.1	Annual Project Report (year 1)	5	M12
D 1.2	Annual WG report	1	M24
D 2.2	Annual WG report	2	M24
D 3.2	Annual WG report	3	M24
D 4.2	Annual WG report	4	M24
D 5.2	Annual Project Report (year 2)	5	M24

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