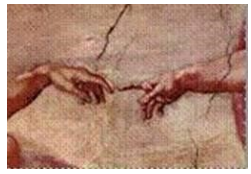
ASPERA Common Call

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:	Management Committee Meeting, Telecon,
hyperlink:	
Date:	23/10/2015
Location (or phone)	phone

Participants			
01	Harald Lück (author of the notes)	02	Sathyaprakash
03	Ronny Nawrodt	04	Stuart Reid
05	Dorota Rosinska as proxy for Thomek Bulik	06	Mathyas Vasuth
07	Michele Punturo	08	Alessandro Bertolini as proxy for Jo v.d. brand
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Agenda

- status of the work in the WGs
- news from individual partners
- AOB

With 8 out of 11 members of the ET R&D MC participating in the meeting the required threshold of 3/5 according to our MOU was reached, making this a valid MC meeting of which we agreed to have at least four per year.

Valentin Rudenko intended to send Serghei Popov as a proxy, but the starting time was not communicated.

STATUS FROM WORKING GROUPS + NEWS FROM THE LABORATORIES:

WG2:
Nihkef, Alessandro: Nikhef built a network of 200 geophone based sensors, with a natural resonance frequency of 5 Hz, which is now in the testing phase. In a few months this network will be tested @ the Virgo site placed around the interferometer to measure the seismic field and check the correlations between the seismic and the gravitational wave channel. The noise floor of these sensors in the frequency range between 2Hz and 20Hz is well below the seismic background level at the Virgo site.
A new PhD student has started work on September first.
Another student has just started and will continue the development of the MEMS sensors, which have already reached a sensitivity of 1 ng/sqrt(Hz) @ 1Hz. This noise level is below the seismic at ET candidate sites. Technical aspects, e.g. vacuum encapsulation, are now being addressed. The Nikhef group is collaborating with the Polish group.

Poland, Dorota: 21 sensors are ready for use. Four of them are installed in a tunnel built in WW2 at a depth of 50m. This tunnel provides a seismic laboratory with very low seismic motion. The sensors have been tested offline for two months and are now in an online test for one month already.
One of the sensors has be calibrated against a Trilium seismometer from Nikhef.
Another sensor has been sent to and is set up at the Wigner institute in Budapest and is tested there and calibrated against a Hungarian seismometer.
In November the sensor and the seismometer will be placed in the Matra mine. Later ten additional sensors will be placed inside the Matra mine.
8 sensors will be brought to the mine at Sardegna.
The Polish working group consists currently of two engineers, a PhD student, Dorota and Thomek.
The Polish group is considering to extend the project to the end of 2016 at no additional costs.

WG3, Ronny: last week there was a joint telecom of WG3 of ET R&D and ELiTES.
One of the task left to do is the cryogenic measurements of the birefringence.
There was a meeting in August where it was discussed which coatings to use. The decision was to first go for highly stressed samples to get good signals. Cryo tests have been started and some small technical issues are being worked on.
The stress optical set-up in Glasgow is now operative.

What is left to be done in WG3? Homogeneity measurements of large samples and surface quality inspections.

In the teleconference of WG3 last week Valentin Rudenko gave an over view of the cryogenic cavity measurements.

Reports from Michael Gorodetsky's group on Whispering gallery modes are still missing. We have not seen any results there, but heard rumours on satisfactory progress.

Glasgow, Stuart: made coatings with varying stress levels also going for very high stress with diamond-like coatings.

WG4: no representative of WG4 present.
Harald reports on work done in Hannover on ET LF control schemes:
ET LF control signals for a far detuned recycling cavity have been simulated and validated with different codes. A sensing matrix has been calculated and shot noise limits for the various error signals are established. The cross coupling of the shot noise into the other degrees of freedom is being analysed.
The potential of twin signal recycling for ET LF and the effects of optical springs are also being looked at.
Discrepancies between the Design study document and Finesse simulations for filter cavity requirements are being analysed.
No work has been done so far on Filter cavity control.

WG1, Sathya:
The CBC analysis has been completed. A paper will be submitted at the end of this month.
Four more papers are in preparation:

- Cosmology
- EoS of neutron stars with GW
- Burst analysis? Not sure.
- SN signals? In any case SN signals had been injected.

Sathya is planning to write up ET Science cases for different sensitivity scenarios similar to what has been presented and discussed at GWADW.

Michele reminded the participants that in February we will have a joint ET / CE meeting close to Florence and encouraged everyone to come up with proposals on joint R&D activities for agenda items. On the Science side questions could be discussed like: how many ET like facilities do we need? What science can we do with a single ET and a network of advanced detectors? Sathya has done studies of this and we can have extended discussions at the meeting. We should also address question that arise from an infrastructure point of view.