

N2 General Meeting – Zaragoza, Spain, 10/11th July 2006 Minutes (and Notes)

Participants: 15 people from Canfranc, Boulby, LNGS, Modane and Physalms

This meeting help following a JRA1 meeting on 10th July at the same location.

(1) N2 Film festival and subsequent discussion - all

We viewed 4 films (Italian, UK, Spanish and Finland) in order to assess whether our own film would be useful and what the contents could be. We discussed:

- how do we rate each film and why?
- which is best and why?
- can we see how to combine them?
- what would be the market?

The discussion included the director of the Spanish film. Following this we made a decision, based on a cost estimate from the director of €30K, that we should proceed to make a 25-30 min film for use by all the labs for outreach activity. We elected Jose Carmona to chair a subgroup (Luigi, Roberta, Sean) to determine the content and move the film forward. We estimate it will take 7 months to make the film following establishment of the concept, in particular a good story is needed. We will need a script first. The film should be: translated into different languages (interviews with subtitles will be fine); accessible to general public, it should mention all labs (though not necessarily evenly); it will not be specifically aimed for broadcast TV (yet). We discussed finances and agreed to arrange this late but that probably LNGS at least would be the major fund provider (from ILIAS JRA1 as well as N2 if transfer of funds is possible). If there is extra funding from the labs directly that is fine but the maximum ILIAS contribution should be 30K.

ACTION: Jose to coordinate the film

ACTION: Jose to arrange a phone call with Luigi and Roberta to start work

ACTION: all – consider what “story” to use

(2) Minutes and Actions from previous meeting - Neil

We reviewed minutes and actions from the last meeting. All actions were either complete or well in hand.

(3) Finances - Fabrice

Fabrice reviewed the N2 finances. There were no major issues.

ACTION: Neil, Nicola – check status of costing for staff on N2

(4) Report on WP1 – Scientific Coordination – Neil

Neil reported on WP1. There has been an attempt to gather all minutes from science groups of the labs. So far LSM has made the minutes available on the web but for other labs this is under negotiation. Canfranc will form a new committee soon and plan to make minutes available if possible. They will likely agree to a summary of Science Committee minutes but probably not details of experiments. For LNGS this needs more discussion.

We would like to hold a special workshop on site expansion. Studies are on-going at LSM and LNGS. A particular issue is how to deal with liquid gas. This is likely to be arranged for Nov 2006, possibly in London.

There are two upcoming relevant meetings:

BUS 2006, 21/22 Oct 2006: a first Boulby meeting on underground science in general.

IDM2006: dark matter workshop in Rhodes 11-16th Sept.

Attempts have been made to stimulate CoMag, the lab directors forum. But so far there has not been much response. One aspect is to discuss FP7 in relation to the labs.

Co-Mag: Nicola to ask Coccia, Canfranc agrees on meeting

Ask Roberto for LNGS

ACTION: Neil - arrange web links to minutes of all lab science meetings.

ACTION: Neil – arrange technical meeting on expansion – ask Roberto from LNGS

ACTION: Nicola to ask Eugenio about lab directors meeting

(5) Report on WP2 – Safety - Chiara

The group is a good team now with 2 people from each lab working together. There are two groups of labs with slightly different safety concerns, road tunnels and mines, the latter with vertical access. Many lab visits have been undertaken in the last 18 months. In Mar 2006 there was a safety visit at LNGS including a visit to the tunnel control room. There have been important working visits at Phyasalmi recently and at CERN.

Chiara reported on the recent Phyasalmi visit that was very successful. The group visited various areas underground. The meeting included discussions on the joint working group and joint training strategy. This could cover for instance the liquid noble gas issues, emergency procedures, dividing into sub groups to cover mines and tunnels. The target would be safety officers mainly but also the tunnel or mine operators. The various current courses have been attended and compared. At LNGS a course is given once per month with content good for all the labs. Part of this course includes showing of a film on the procedures in case of a crash in one of the tunnels. This is the most complete course so far. So there is a plan to include presentations from each lab of the accidents and how to deal with them.

Regarding a joint safety strategy, with all 5 visits completed, we are ready to complete the comparison. A long discussion followed the Phyasalmi meeting. There is a 13 page table comparing all the labs (5) including safety. Now expanding to detail

specific safety aspects. There is now a strength and weakness assessment of each lab being made. Weak points: for LNGS the main issues is the absence of an independent evacuation tunnel. Also there is no radio communication inside the lab. For Canfranc it's not possible to make a full assessment until the lab is operational., but is expected to be of high standard as it is a new lab. For Modane there is an issue about identification of people and there is no radio communication. There will now be a new evacuation tunnel built as part of the planned upgrade to the road tunnel. For Boulby there needs to be a full scale fire evacuation trial. For Phyasalmi there is need for air conditioning and a need to ensure use of lamps.

HEP and ILIAS safety network: LNGS is already inside the network with DESY and other HEP labs. So now there should be a link to all the labs for safety. The connection was started 2 months ago at the International Tech Safety Forum 18-22 Sept. This group discusses topics in all areas of safety. The ILIAS group can join this workshop to meet the HEP group and start discussions. Roberta will collect input from all the labs. So we could join this forum.

Safety Audit group: This group could be involved in risk analysis and training also in relation to lab upgrade and development. The group would look at experimental plans and implications for safety, as an independent body. The issues need to be discussed with the lab directors because the auditing group could have different conclusions from the labs themselves. Membership of the group is currently being decided. The topics to be included are many (12) from cryogenics to user awareness. A particular area is the use of cryogenic equipment regarding issues of spillage and oxygen deficiencies. Some HEP group members may also be invited to join at some stage. The group should include internal people as well as external, with experts on specific items as necessary.

Web page: A new site to cover the safety coordination is being developed to ease information exchange and to improve a common strategy.

In terms of task and deliverables the work package is well underway and on schedule.

ACTION: Chiara to send brief note to lab directors on the audit committee plan

ACTION: lab directors – discuss this with your respective internal committees – agree a terms of reference

(6) Report on WP3 – Outreach - Claudia

Claudia presented good progress on the outreach activities.

Joint web-cams: At the recent LNGS open days we started using web-cams (joint web-cast) from other labs to show activity in those labs. The experience told us that for next time and videos and web cams need to be inside, or in dedicated place, to aid visibility. A PC was used to establish the web-link but because it was outside the Sun caused visibility problems. So next time it would be better to be inside with an internet point and perhaps project the movie. Claudia has prepared a report for the exercise. The Canfranc internet link was not ready but will be available in Sept. so they will start a web-cam later in the year. The Frejus web-cam was also available

but there is a legal problem in general about showing people at LSM, however it can be done from 9-11pm. The Boulby web-cam is running and available.

Other outreach: new posters were made and displayed in a tent outside during the LNGS open day with brochures and information distributed to the public. Some new material should be produced for next time, this can be sent to LNGS and be translated. We need to keep the material fresh as some people.

Joint Brochure: a prototype of the joint brochure has been made, with a description of ILIAS and some pictures from all the sites. On the inside there is a map of Europe and pictures. The work was done with quark express. We now need to comment in three weeks and we need to provide new pictures from all the sites so that the best can be used.

Film: as above we have now decided on the way forward for the film. The 4 current films from Italy, BBC, Canfranc and Finland can also be made available

ACTION: Claudia – distribute the draft brochure

ACTION: all – DEADLINE 3 weeks – provide feedback on the brochure

ACTION: all – provide Claudia with new pictures from all the labs

ACTION: all – we need new posters, to keep them up to date

ACTION: Canfranc, Physalmsi – really need posters and brochure material now

(7) Report from Boulby - Neil

Neil reported progress at Boulby. New measurements of radon have been performed with DRIFT. Background neutron tests are still underway with NUTS. Currently both ZEPLIN II and DRIFT II detectors are running. There are plans for expansion under discussion and there will be a meeting on underground science in general held in York on 21/22 Oct.

(8) Report from Canfranc – Julio

Julio reported progress at Canfranc. The official opening was Mar 2006. There are 3 owners, Zaragoza University, the local and regional government. The council will meet this month to appoint the director plus two committees, EB and scientific. The director should be official by Sept. A new committee is to be elected in the next month. The political structure for the lab is now complete. The first meeting of the governing council is due soon, then they will elect an advisory committee. There will be a general director and two others with 2 meetings per year (GC once per year and EB twice per year). Last week first meeting of sci com different LOIs presented and first decisions made. Three teams have asked for space at Canfranc - SuperNemo, ArDM, ZIII, also Rosebud and ANAIAS.

(9) Report from Modane - Fabrice

Fabrice reported progress at Modane. The opening ceremony for Edelweiss was in Mar 2006. They have ordered new Ge detectors for the facility. Agreement has been reached on the size of the new gallery, it is to be 8m wide now. This will allow use by the lab to access the existing lab and for the new extension if this goes ahead.

The next science committee meeting is in Dec-Jan with Fabrice now as the official director. A new building will be constructed on the surface for the lab (85% confidence in this now). It will have 150 m² for communications and exhibition. The outreach programme will have visiting exhibitions from the regions. The local politics is sensitive to developing science outreach in the area. There will also be an apartment. And a conference centre for 100 people in a few years.

For the new tunnel/gallery: it will take two years to build the site but needs signatures from the governments in Italy and there will be elections in France, so there will be delays. 6-7 months to excavate, total 3 years. France has to start again on the designs now that it is bigger than originally thought. So the earliest time for use would be 2008 but 2010 is much more likely, also for CNRS and CEA budgets. But the politics are favourable for the region.

(10) Report from Gran Sasso - Nicola

Nicola reported progress LNGS. The main works now being completed are the independent ventilation and water systems. Progress on experiments is as follows:

Opera is pushing to be ready soon with most parts under construction and mass production of detector bricks after summer. The beam from CERN is planned for Aug/Sept. but the target is not installed yet. There was a 2 day workshop held by Borexino and LVD to determine what they might see from the beam. It is probably good as a monitor - 100 muon neutrinos per day (LVD) and also Borexino can do good monitoring close to Opera. DBD experiments are making progress - Gerda has finished support flooring and will start shielding soon. Cuorecino is continuing and timescale for Cuore are reasonable (6 months) for installation start. DM experiments are continuing, XENON and WARP, both tested. XENON has started installation and completed shielding and have started taking data. They have first results on background. WARP has interesting results and will start the 100 lt detector after the summer with installation of shielding, with operation in 2007. Libra is taking data still. Borexino, will start operation with water first to be done in the next few weeks. So they may start operation within 2007. LUNA has published some good results and are now planning to build new apparatus for ⁷Be tests. Other interesting astrophysical interactions for the future with new facilities at LNGS are under discussion. For ICARUS they are planning passive insulation installation – this needs approval for transportation. New cryogenic plant installation at LNGS is underway, including for LN2. Plan to start ICARUS at end of year. Outside the lab now has new building to host facilities for offices and labs mainly for Opera.

(11) Report from Phyasalmi

Juha reported progress at Phyasalmi. A brief report was given covering the muon experiments at the mine. One new activity is design work for the new LAGUNA project.

ACTION: Juha – provide publicity materials

(12) FP7 discussion on Lab Network for ILIAS-Next

There was a detailed discussion of FP7 issues. For the network, Fabrice presented the following ideas for workpackages.

WP1: Improvements of science coordination
Including coordination with the shallow sites in gamma-ray assay

WP2: Site extensions
To define strategy and priorities - underground physics roadmap

WP3: Site improvements

WP4: Coordination of Ge measurements

WP5: Safety

WP6: Communication and outreach to other communities (including non-physics)

WP7: Relation with industry
Including strategy for purchase of equipment

Note: ASPERA has ambitions regarding lab coordinations.

ACTION: Neil to arrange FP7 joint N2/JRA meeting to discuss lab proposals.

Note: 2nd August phone conference for ILIAS Next

(13) FP7 discussion on JRA for ILIAS-Next

Mattias described ideas for JRA1-NEXT

WP1: Optimisation of performance for Ge detectors. Dedicated facility or detectors at different techniques

WP2: design and production of alternate joint LB facility

WP3: common data base for materials

WP4: joint R&D on new low level spectroscopy for alphas and beta as well as gamma, cryogenic detectors, and gas counters. Surface measurements.

WP5: could be joint, new methods and techniques for low level detector system, e.g. purification of gases

WP6: joint LB systems Ge, Neutron, radon measurements etc

WP7: common approach to simulations of background and quality assurances, calibrated sources, common approach on statistics and presentation of data, checked experimentally as well as in analysis

WP8: Radon and plate out, measurements and reduction

WP9: purification and isotopes, inc. detector production underground, also with industry

WP10: science programme into forensic studies, geology, hydrology, biology etc,

WP11: low background measurements Muon, radon and neutron

ACTION: Neil to suggest a simulations JRA in ILIAS-NEXT

ACTION: Neil – set up N2/JRA1 joint phone call for FP7

ACTION: Vitaly to outline this JRA

[ACTION: Neil - who will run the liquid and gas TPCs – note Laura Baudis is now in XENON.

(14) Additional notes on the JRA1 and FP7 discussions of 10th July

There was a general discussion of ILIAS-NEXT for the labs.

JRA4 discussion: Could this be a collection of dedicated support experiments only? can we ask for a person and some hardware to do the neutron induced muon work?

There was a long discussion of the possibility of a JRA5 dedicated to simulation, with data analysis (or perhaps as a network), thus:

JRA5 – simulation for underground experiments (or underground simulations and measurements). Possible work packages would be:

Radon decay and plate out simulations

Muon and neutron propagation

Detector simulations (GEANT)

Low background simulations and propagation

For JRA2: advanced detectors should be a work package in JRA2

TARI: we should ask for money to support equipment and consumables, and transport. Extend use of TARI to other users, Russia, US etc., non-European.

Change submission to make it simpler process, on-line submission.

Access allowed also to computing facilities, e.g. for theoreticians. E.g. Boulby can offer the GRID cluster at Sheffield for simulations.

(15) AOB and next meeting

Next meeting joint with JRA1 to be held in late Dec or Early January, location either London, Milan

NOTE: there will be a workshop on Low Background techniques on Oct 1-4 at Modane