

18th June 2019

Present:

- Haixing Miao
- Haoyu Wang
- Mariela Masso Reid
- Nils Andersson
- Shigeng Song
- Siong Heng
- Tim Sumner
- Yan Wang
- Yi-Ming Hu
- Stuart Reid

Siong: welcome to today's Skype call, so sorry for the delay in starting the call. The agenda for today's call:

The main items for the agenda:

- Follow up on the meeting held in Glasgow
- Updates on the various work packages
- Any other item that needs discussed

Siong: Today's call is to follow up from the Great meeting in Glasgow, to discuss where we are in terms of getting more collaborations forward. Lets go through the items that arose from the meeting in Glasgow.

The main thing to come out from the Glasgow meeting is that we created a project page, and this is link from the email sent from the agenda and also now on the conversation. The idea is to capture things we would like to do through the Great network. We have three at the moment, two for space interferometers, and one for Kilohertz detector. There were more project ideas that were commented in the meeting so we should make sure they are all there.

https://gilsay.physics.gla.ac.uk/dokuwiki/doku.php?id=great_network:meet:project_discussions

Perhaps the next question is now that we have these nice projects, how do we identify partners for this projects? Would maybe Yi-Ming or Haixing would like to say something? We could maybe discuss them here and then we could see how to best proceed. Let's then go with Haixing first.

Haixing: The main activity in the kilohertz , the prototype happening at BNU, we are at the moment wrapping up on the optical designing and also other things as well as the decoration of the lab. I think the main issue is the vacuum system which we are considering all the different requirements, and we might need Glasgow's input with the suspension for the main optics. I recently had conversation with Ken Strain and we found out that in the set up we might have ground vibration in the lab so we might need triple suspension design by Glasgow and AIE, and an issue he mentioned is that he's not sure how to do the exchange in knowledge since there's no route. So I'm wondering if Siong or in Glasgow is there anything in mind? Also could have a student go to AEI or Glasgow to work and learn to do the design, but do you have thoughts on this?

Siong: Not sure what Ken meant with this, route for knowledge transfer.

Haixing: Basically, Glasgow/EAI already have this nice design and then what Ken meant is that he can't just give us the drawing directly to us, I think this was also mentioned by Yi-ming before about the fibre pulling because it is not a public document.

Siong: I see what you mean, Do you know if Ken is happy to do this?

Haixing: Yes, he's keen to do this, he just wants to make sure it's done correctly. He also said that if someone would want to come to Glasgow/AEI and learn from scratch that would be even better, he's keen to help. But right now you won't take the existing design, there needs to be something to be done so maybe one thing for the collaboration is to find a route for this design to be transferred.

Siong: I think I know what needs to be done, I will firstly have a conversation with Ken, these documents are in the LIGO DCC, and this was discussed with David Shoemaker and if people agree then they can be made public. Once it is public it can be shared with anyone.

Haixing: Ken also said that there's a lot of things that aren't written for the suspension so that it would be good if we could send someone over and have them learn. It would be a great activity and also design for what we need.

Siong: Yes, I think both activities go hand in hand both making documents public and I agree with Ken it is probably very valuable to have someone visiting Glasgow and AEI coming over.

Haixing: Also maybe Stuart would like to collaborate with the coatings as well then we would be very grateful because right now we are contacting MA for the coating and they have already, they can fabricate for the prototype and we have some budget but maybe Stuart has some ideas on other types of coating then we can maybe do some testing.

Stuart: Yes, that would be fantastic to find ways to collaborate on the coatings if you drop me an email after this call then maybe we can start working out what we can do.

Haixing: I think that's pretty much everything on our side.

Siong: I think for you the next plan of action would be to speak to Ken or other of the collaborators, the GrEAT network is supportive of UK-China activities so in terms of the agreement in the network maybe talk to people in the UK and identify who would host people from the prototype lab and learn about these things and we can start the ball rolling for tips and stuff. Does that sound good to you?

Haixing: If we buy something like some equipment from UK to China is there anything established? Do we have anything established?

Siong: I think Mariela might be the best person to answer this as she's the one that deals with all this stuff.

Mariela: Our budget is not very large when it comes to consumables but we do have some budget for it. I think if there's anything that needs to be purchased in the UK the easiest thing is that we purchase in Glasgow and then we can ship it wherever it needs to be sent to.

Haixing: Oh no I'm not asking about asking for requesting funding from the GrEAT network, the prototype has its own funding. Is there any easy way to go through the customer or any barrier or any issues?

Mariela: Oh, you mean in terms of sending something large? We've not really sent anything large yet that is big but I'm sure I can look up and help with that.

Haixing: For example if we want to order a suspension from Glasgow, is there a way to go or is it actually quite difficult?

Mariela: So at the moment I can't really answer that, I can get in contact with Giles and Ken and ask what route they have for sending. If there's anything that you know you specifically

want send me an email and I will get in contact with the right people and work out what needs to be done.

Haixing: I spoke to Ken and he doesn't know.

Mariela: If it's just the suspensions then let me know because I know Giles works with AEI we had some people from there come and work on fibers and took things across. I'm not linked with the suspensions people so I don't know what procedure they have in place. But just email me what you want and I can't find out the specifics.

Mariela: Even if it's not urgent is good to know in advance.

Siong: I think that's good, so let's move to the next project . The next project is from Wang, so would you like to say something?

Wang: Our project title is Gravitational-wave data analysis for space-borne laser interferometers. Is actually part of my proposal for the National Science Foundation in China earlier this year, so the idea is to build some data analysing pipeline for space detector, the first stage of this project is to build a data analysis algorithm that can handle data analysis for a single source in specific category , then expand this algorithm of pipeline for larger data and so solving the whole enchilada of everything, is quite an ambitious project I would say but I think the first thing we would like to do is build this data analysis pipelines for a few specific sources, and I think this is a huge overlap with Yi-ming's proposal.

So I put it on the website to draw attention from experts and students from the Great network and students, since there has been development of this for the past 10 years. There are already a lot of algorithms and pipeline, so we could get some ideas from individuals that have worked on this already. We have two graduate students working on data analysis for space detector, one working on white dwarf binaries and Xinchun working on supermassive black hole binaries. She's been in Glasgow university with financial support from the GrEAT network. Once We can combine these together we can work out how to solve these problems. That's my main purpose to make this a open project so we can have people from the GrEAT or others involve.

Siong: Great thank you, that's quite interesting, so do you have any institutions or collaborators in mind already?

Wang: Assume that we are now collaborating with the Glasgow group and in the future we can collaborate with others in the future.

Siong: What I was thinking we should do is circulate this list of projects and tell people to have a look at the projects so people can have a look and we can try and match to this project. I am sure people in Birmingham and Cardiff would be interested.

Wang: Yeah I think that would be great, even in Glasgow I think people have already been involved in the data analysis and so I think even in Glasgow I am not sure if it transparent to everyone.

Mariela: I will make sure to send an email will the table so everyone can see it.

Siong: OK, great - Shall we move on to Yi-ming?

Yi-ming: Yes, I think has already mentioned overlap is quite large, and Wang is already covered most of it. I tried to pass this table to our colleagues here so they could share the expertise, we have a wide range of expertise here from data analysis, astronomy, as well as experiments like optical bench or related to aerospace. Is very large mixture, unfortunately no one as contact me to put in more aspects. But I was wondering if other GrEAT network members coming from a different aspect from me that could point out some other aspects and I could show to our colleagues and maybe some collaboration could happen. So re-

emphasize this to our colleagues to put in their list of expertise on the table. We tried to form some collab before with some other colleagues in Glasgow but since the discussion channel is not very fluent and it was only a collab on paper, we got the grant, we tickets all the boxed and not much discussion happened. In order to make this solid the collaboration to happen we need something more. During this Great network meeting we mentioned this summer school in the UK. That is a question.

Siong: That is a good question that is one of the follow up questions we were going to ask. We have Nils here, would you like to say about the SOTON school organization.

Nils: I can yes, so of course its not the summer school you prob have in mind for the lectures on relativistic fluids and simulation we have a total of about 15 people or so with links to India and China, half from China others from BAI and Frankfurt students that are working in other European groups. I believe Mariela has sorted all the travels for the students and postdocs and the accommodations have also been sorted on our side. So is all very well set up now, I think we are ready to go pretty much but it will be focused on the numerical aspect as we promised.

Yi-ming: Nils' summer school sounds very good. But there was also the idea of having a school for 1 or 2 weeks and then scatter the students around the GrEAT groups. What's the update with that school? That was my intended question.

Siong: Yes, I know that sorry, I just picked Nils because I saw him here.

Haixing: Yes, I sent you an email during the weekend, and basically is a draft agenda and we have some faculty here that are discussing summer projects which covers space based data analysis and also the ground based simulation and some high frequency detectors stuff. The idea is having like 1 week introduction with hands on sessions then the students can move to other institutes to continue working on the project but one issue turns out to be the date. I think end of October is OK because I think we'll have a workshop in Wuhan early December so should have 2-3 weeks times for long projects to happen. IS that right?

Siong: I think is OK I think the Wuhan date hasn't been set yet.

Haixing: Yeah so the agenda for our school has it starting October 28th until November 1st so is just one week. So everyone open the document. Maybe I can share my screen for those who cant see it I can show my screen. So this is the agenda in the morning talks from different people, instrumentational and astronomy side, speakers haven't been set the names have just been put as place holders as well as the time can change. And in the afternoons would be hands on sessions, two projects. One astrophysics and one experimental aspect but we hadn't decided on the main topics and at the end of the we will have the students give a presentation and provide intent to continue project at other places.

Siong: Sounds great to me and a good start. Perhaps we can make this draft accessible for people who are applying to visas can point to.

Haixing: yes, we were waiting to send the email and see where things are going and visa issues. The idea is to maybe accommodate 20-10 students depending on who's coming. And also depending on which students are coming then we could shift the focus of the school to be more specific. So is everyone happy with the plan and possible date for Wuhan.

Siong: Any questions or comments for Haixing?

Mariela: If everyone is happy I could email this around to people with tentative dates for when the workshop would happen and once there's a specific date then we can have a website to link with the event and then move it forward.

Haixing: Sounds perfect to me, and also anyone who would like to provide a project then that would be great.

Siong: looks good.

Yi-ming: yes, this looks very good but as you mentioned is very heavily data analysis and astronomy which is very good for me but maybe our colleagues and other members would be more interested in experimental and aerospace but let me circulate this around to our colleagues and give you some feedback later.

Haixing: the next few weeks we can gather the list of students and then give us some idea of who we should consider for giving the talks.

Siong: Ok – anyone else wanting to say anything about the workshop. Any issues around the timing? Ok that sounds like a good start. Great. OK, that's the summer schools discussed. Yi-ming would you like to say something about the S|YSU summer school?

Yi-ming: the summer school is scheduled to be 15 – 26 of July, two week summer school and everything is as scheduled but I don't think we've received any application from the UK side but you are more than encouraged to encourage your students to come.

Haixing: Do you have a program or website we can look at it? Also is there any travel support for this meeting?

Yi-ming: I can send you a pdf file and as for the announcement is already online but in Chinese. For the financial support I think Siong mentioned that if the number of students wasn't too large then he could support the travel.

Haixing: I meant like UK students are also part of this thing I guess then ye?

Siong: So if theres interest from UK students to visit we could support them and I think SYSU has also said they will help with accommodation. IS that right Yi-ming?

Yi-ming: YEd that that's right, I would like to say that the application deadline is approaching we had set it for 21 of June so approaching very soon for application.

Haixing: Ok, then if you can send to me then I can

Yi-ming: Yes, good.

Siong: Ok, I think those are the main subjects from the last meeting to follow up, Did I leave out any? IF not then, lets quickly go through the WP. I know a lot of what we've discussed is related to the majority of the packages. Would anyone want to say anything about WP1?, sounds like a no, OK. WP2 is education and I know there have been conversations between the planetarium, martin and Milde marketing on the portable exhibit on ways of incorporating aspects of that into the exhibit that Beijing planetarium would like to make, so this is one this currently ongoing. Would anyone else like to say anything on this? Sounds like a No. We've discussed a lot on WP£ so far but is there anything else we are missing on data analysis here? OK, then there's WP4 which is precision measurement and instrumentation. Haixing discussed a bit on the prototype interferometer. Stuart is there an anything relating to coatings that we should discussed here?

Stuart: No major update, but we just had a new postdoc joined us Paul Hill so I will update him on what we are doing within the GrEAT network, things are progressing slowly but yeah we need to do more.

Mariela: I also received an email from Jinlong at the beginning of the week so I believe he will be putting in an application for a student to work with Des and Stuart at some point on

the mechanical loss experiment, . IS not set yet but I am assuming is on the works behind the scenes at the moment.

Siong: Excellent. OK. If there's nothing else, let's move on to WP5. We've said a few things but is there anything else we should say regarding space detectors?

Tim: Well I think the focus at the moment is on the workshop coming up in July and I believe there are 4 of us going over from this network to join the Workshop and certainly I'm planning a trip to Wuhan and that's certainly an opportunity to discuss this further and were it might go in the future.

Siong: Thanks Tim that's excellent that you are going to Wuhan.

Tim: Yes, I Think is a great opportunity there.

Siong: Yes I agree. Anything more on WP5?

Siong: then the last agenda item is Any other business? There was an amendment going around, I believe it went around our UK partners and it is currently going around our Chinese partners and in the process of being signed. We've already had a few signatures so thank you for those, I just wanted to bring it up to the attention of our Chinese partners that this amendment should be signed as soon as possible. IS there any other business or comments?

Siong: If not then, thanks everyone for joining todays call. We will try to have another call in July and discuss status updates and wherever you are on the collaboration.

Thanks.