2nd QUAREP-LiMi meeting

9th July 2020

45-47 participants

Minutes compiled by Alex Laude, Glyn Nelson & Orestis Faklaris

Agenda

A. Welcome: short introductions for newcomers in QUAREP-LiMi

o Showing the cloud storage

 For discussion: What is missing/needed? Setting up of own event calendar for all meetings and the WGs (Google calendar or something else?). How to improve the cloud usage? Webpage? Wiki?

B. Background to QUAREP LiMi: how do all the current local-national initiatives fit together with QUAREP LiMi?

- $\circ\,$ Is there a collision of interests? How to avoid it? What structure could/should we have in QUAREP LiMi?
 - For discussion: Proposed model for the organization style of QUAREP-LiMi. This is based on the way how ISO is organized and related to the National standardization bodies beside.

C. Founding of the sub-workgroups (WG)

•	WG 1 ISO Illumination Power
•	WG 2 ISO Detector linearity and sensitivity
•	WG 3 ISO Uniformity of field - flatness
•	WG 4 ISO System chromatic aberration and Co-
	registration
•	WG 5 ISO Lateral and Axial Resolution
•	WG 6 ISO Stage and Focus – precision and other
•	WG 7 Metadata
•	WG 8 White paper
•	WG 9 Over all Planning + Funding
•	WG 10 Image Quality

- Putting the people/members together from the workgroup selection and deciding/voting about a speaker and co-speaker for each of them.
- Discussion about more suggested possible workgroups: WG S/N sensitivity; WG spectral sensors; WG measurement tools
- Discussion about first concrete practical steps within the WGs Fine tuning of the topics, Time-line - mile stones, frequency of meetings, practical work in groups

D. Proposed Book / publications: Springer Series on Fluorescence - Standardization and Quality Assurance in Fluorescence Measurements

E. Other points

 Thoughts about a possibility of a larger physical meeting, small local practical personal meetings, funding

F. Date for the next joint QUAREP LiMi online meeting

Minutes

Key: Background information and remarks by Roland N provided as text The meeting discussion was fluid both verbally and within the chat, we have tried to organise the points raised into conversation topics roughly relating to the agenda items. We hope that this will make the minutes easier to follow.

The points raised are bulleted with further sub-bullets relating to subsequent conversations.

A. Welcoming remarks from Roland N

B. Background of QUAREP-LiM & group aims:

Roland: The QUAREP LiMi group is formed from a diverse background of imaging scientists covering: industry; government; universities (facilities and research labs) and EU



QUAREP-LiMi - Where do we come from?

organisations (EMBL and Global Bioimaging).

It is a Community-driven group and may receive input from individuals or national / regional groups depending on how they have been invited.



So far, manufacturer input has been limited to the 4 large microscope companies (Leica Nikon, Olympus, Zeiss) as well as camera and laser manufacturers (currently Toptica and PCO) and QC tool manufacturers (Argolight and PSFCheck).

There is also representation from Calibration and Standardisation Groups: ISO, DIN, BAM, NIST and NPL.

Corporate participation discussions (inc chat)

- Antje Keppler (from chat): Global BioImaging (GBI) works with industry at the level of individual companies, because it gets complex at the global level with the regional branches in the large companies.
- GBI could be used to leverage interest from parent companies and may be the best way to involve them
- Corporate 'relations' how to incorporate companies and where those discussions will take place. work with Global and Eurobioimaging industry board.

Aims of QUAREP LiMi: Roland briefly introduced the main aims of the group

QUAREP-LiMi - What are we aiming for?

- Quality control
- Quality assessment
- Learning more about QC and QA
- Speaking the same language in QC and QA
- Defining a common set of needs
- Repeatability, Reproducibility
- Reliability
- Standardization
- Stability of instruments and results
- Comparability of results
- Common measurement and software tools
- Teaching QC and QA
- Manuals, SOPs for QC and QA
- Documentation of QC and QA with each image, measurement

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	Publications_QC+QM Calibration Standards Software	
	QC+QM Test tools + Software and other material	
	White paper + Funding + Workgroup	
	Readme.md	
	7 folders and 1 file	

Cloud storage for group information: Introduced the cloud server https://bwsyncandshare.kit.edu and the Contacts and People spreadsheet.

Tools, software & information database: Glyn N showed the Tools database spreadsheet and encouraged WGs to indicate on the spreadsheet any tools suitable for their WG, they can also update the database with new tools as they are identified.

The database will be maintained and reviewed by a small working group formed in the first instance of:

Glyn Nelson, Alex Laude & Orestis Faklaris, references and relevant links will be updated over time.

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- Alex L: would it be possible to **incorporate images or datasets captured with each tool** as a link in the database to the online storage location?
- Alison N: the list includes the tools accessible for everyone or the special ones also that we obtain when we buy a system?
 - \circ $\;$ Roland: we should include it but we should ask for the product number.
 - \circ $\;$ Could be added as a tick box in a separate column on the spreadsheet?
 - Michael S (chat): Can you filter the tools by their relevance to different fluorescence imaging techniques?
 - \circ $\,$ Orestis F: we created a category for techniques found in the drop down menu.

General discussion points raised:

- **Potential conflicts of interest between this group and others?** Global bioimaging EMBL?
 - Roland: Global BioImaging and EuroBioimaging are not wanting to push the QC agenda.
 - Antje K (Global Bioimaging (GBI)): asked what we would like from GBI, and offered to publicise the group for us via GBI. This was agreed with as it would improve our visibility.
 - Caterina SdC proposed that the QC work of BINA be linked with QUAREP and the BINA tool database be merged.

- Laurent G. asked what was the **legitimacy of the group** and how large should it be?
 - Roland N / Glyn N replied that a larger group was more representative and more likely to be accepted by the larger society, and that the tasks we've set ourselves involve a lot of work, so more hands would be better. Caterina SdC and Antje K agreed.
- Alison N pointed out that we need to encourage workers within the WGs and also asked how we **deal with manufacturers in WGs**?
 - Roland N: having industry reps on board was of benefit to the WGs. Difficult to get traction with companies so you have to keep chasing them up. Need to identify the correct person to contact (go to the top).
 - Stan S: often conflict of company rep with management, they need to take the issue seriously. But with a global community and pressure companies will start to align with the QC issue. Will forward list to Roland of industrial and academic contacts.
 - Roland is happy to liaise with Leica and Zeiss in Germany but wondered if those in Japan might liaise with Nikon and Olympus?
- Alison N (from later on in the meeting): BINA corporate relations group set up how could it work with QUAREP? Separate working group or incorporated into WG9.
- Alex L commented that further down the line, the group should be pushing to improve procedures, documentation and reproducibility by involving publishers and encouraging them to request QC data alongside that published.
 - Ian D said this was becoming more normal with the insistence of raw data being made available but as yet no requirement for quality control information relating to microscope performance.

C. Working Groups

Roland N proposed following the ISO preparation method for running these and introduced the concept.

- Putting the people/members together from the workgroup selection and deciding/voting about a speaker and co-speaker for each of them.
- Discussion about more suggested possible workgroups:
 - WG S/N sensitivity; WG spectral sensors; WG measurement tools; WG Image quality
- Discussion about first concrete practical steps within the WGs fine tuning of the topics, Time-line mile stones, frequency of meetings, practical work in groups

Stage code	Stage	Associated document name	Abbreviation	Who is working on it Kind <u>of work</u>					
00	Preliminary	Preliminary work item	PWI	Community, WG set frame					
10	Proposal	New work item proposal	NWIP	WG <u>writing</u>					
20	Preparatory	Working draft	WD	WG writing + individual labs testing					
30	Committee	Committee draft	CD	WG <u>presents</u> to all QUAREP <u>members</u> <u>Discussion</u>					
40	<u>Enquiry</u>	Enquiry draft	DIS	Suggested changes by WG Final <u>testing</u>					
50	Approval	Final draft	FDIS	QUAREP members voting					
60	Publication	ISO manual		Publication who, how and where ?					
70	Review	ISO <u>manual updated</u> revised version	ISO						

Suggested examplified workflow for preparing the ISO submanuals in the Workgroups of QUAREP-LiMi

Timeline of WGs will/must not be similar, but should aim to end at a common time point

An overview of WG popularity and priority choices by group members was shown.



Result of the workgroup selection Most attractive (popular) workgroups



Result of the <u>Workgroup</u> selection process (05.07.20)

- Stan S: suggested groups should have 4-6 actively contributing members to be successful, and that members should only be in one WG. [in chat Damien agreed].
- Stan S: groups should agree on a mission or vision statement to allow clarity and direction of travel.
- Caterina SdC said a strong chair for the WGs would be essential. We should ask participants especially those that have indicated a WG as their second priority to confirm and check that they still want to participate in that working group. Groups should have enough participants to allow them to operate even if some members step away for periods.
- Roland: working groups should be pan-community and not limited to just one or two. Ideally there should be industry participation in each (with the right people from the companies).
- Alison N (from later on in the meeting): BINA corporate relations group and how to get action from companies regarding enacting changes for QC. Stan S said he would send his list of contacts to RN.
- Britta S-D: said the chair and co-chair should be people who chose the group as their first priority. And the groups need to self-organise.
 - Roland: working groups made up of speaker and vice speaker that are responsible for coordinating the group activities timelines etc.
 - \circ How often the groups meet
 - o Push members for output if needed
- Alison N: suggested the white paper and planning & funding WGs should be geographically broad.
- Olaf S: said WG size limits shouldn't be set.

• Christian S (ISO): has offered to act as a 'consultant' to address any questions from the working groups regarding the ISO document. Happy to be contacted by email. But has not joined any of the WGs.

WG10 -Image Quality discussion about defining this group.

- Thomas G explained that image quality is built from spatial frequency, S:N, sharpness of image and associated metadata. Need to discuss what criteria to concentrate on and keep. What metadata to keep.
- Gerhard H, said he represented camera standards working group (hosted by EMVA, European Machine Vision Association) which looks at SNR and other sources of noise. Group does not include single point detectors. There are recognised standards for cameras, optics when defining camera performance.
- Marco M asked if the **parameters for QC should be the same for all image types** (eg transfection efficiency images versus super-res data). The amount of quality control information needed will depend on what you intend to do with the image. A qualitative image will require less QC information than a quantitative one.
 - Caterina SdC said that the 4DN / BINA group was addressing this to set metadata levels dependent upon experiment and modality. This group has identified the need for 'tiered guidelines' to take into account these different types of experiment. Proposed extension to OME model for metadata to include this information.

WG assignment of chairs:

- WG1 -> Laurent Gelman
- WG2 -> Britta Schroth-Diez and Hella Hartmann
- WG3 -> Damien Schapmann
- WG4 -> Hans Fried
- WG5 -> Orestis Falkaris and Glyn Nelson
- WG6 -> Stan Schwarz
- WG7 -> Caterina Strambilo de Castillia
- WG8 -> Roland Nitschke
- WG9 -> Alex Laude
- WG10 -> Thomas Guilbert

It was stressed that these provisional chairs should organise the WG first meeting and that they didn't necessarily have to run the group- they could organise internal voting for chair and co-chair.

Poll outcome suggested meetings every 4 weeks for WGs.

[in chat ASI, Marzhauser and other stage Mfrs should be invited to the Stage WG]

D. Publication / Book Option

Presenting and discussing a very exciting opportunity for the whole QA microscopy community offered to us by the publisher group Springer. Springer approached Ute Resch-Genger from the BAM to work as an Editor on a new book edition of the Springer Series on Fluorescence - Standardization and Quality Assurance in Fluorescence Measurements

Ute then approached me to join and we have the aim to come up with an abstract of the book proposal until 21th of August. This would even give us a lucky small chance to get it open access for free <u>https://www.springernature.com/gp/researchers/campaigns/celebrating-1000-open-access-books/promotion</u>). But if not, finding some money for the open access fee should also be possible by a kind of crowd community funding.

This book could be really a standard tool for our community and is an opportunity we should not miss. We have a good selection of experts in our international group already and we will be able to find more with that attractive perspective in hand.

Roland N introduced the offer from Springer. There is a chance that the book could be made open-access (free). If not deemed suitable for open-access the cost would be in the region of 15,000 Euros.

Roland will upload previous QC-focussed publication (2007/2008 general standardisation of quality measurements which included microscopy) for reference on cloud. Suggested using ISO manual for chapter framework. Also include chapter about 'image quality'.

Require chapter outline and people involved by 21/8. Working groups should submit their ideas at the end of July how they would organise their respective book chapters.

- Claire B: books looked at as poor outcome by University/ employers, are not peer reviewed. What are the advantages? Could we publish a series of papers in other locations?
 - Roland: books / book chapters are good reference material and highly relevant for long periods as the topic will not change.
 Books afford more space to cover the topic.

General comments:

- Free access will be important (essential)
- Those that input into the work need to be credited
- Even if we don't get credit it will improve best practices and the work of those that look after microscopes
- Caterina SdC: **book chapter and paper are not exclusive and may serve different** purposes, may offer the QUAREP group an incredible opportunity to demonstrate their output.
- Publications should be in one coordinated place.
- Marco M (chat) pointed out that protocol videos are more useful/ of help.
- videos are a good idea, book is a pain to do.
- Use Bioarxiv for rolling alterations.
- Add book chapters on up-to-date technical and optical components.

- Alison N asked about the **timing of publication** if WGs haven't all completed before publication date?
 - Roland: Springer needs to set the time-line, they may allow us to update the book as revisions and chapters become available, 'work in progress'.
- Glyn N: if open access is not given then we should look to publish ourselves to keep control and make sure that it is widely available. Likes the idea of everything being in one place.
- Thomas G asked if there was a conflict of ISO and ISO manual.
 - Christian S replied that there is no conflict as long as the text from ISO isn't copied.

E. Other points

Website:

Much discussion in the chat about the need put publicise the activities of the WGs an QUAREP. Agreement that a website is required.

• Alex L. Offered to look at adjusting the UK group QC website (https://microqcfig.org) to host QUAREP group. Relatively low cost per year to host it. BUT need to agree on the format for the website, and who will be responsible for updating it. Roland N and Caterina SdC agreed.

F. Meetings

Roland N asked if we should organise and if so, as independent meeting or as satellite meeting?

- Laurent G said it was too early to plan given country and institute rules on travelseveral others agreed.
- Caterina SdC: A request for any physical meeting should also allow virtual attendance.

A virtual meeting would be organised for mid-September for WGs to report back.

Action points

All: update participation in working groups (be realistic!)

WG leaders:

convene working groups and agree on the following:

- Who will chair the group
- o Indicate vice chairperson
- o Agree on a mission statement for the group
- o Agree on the frequency of meeting
- o Plan work packages for participants
- Agree on timeline- may need to be adjusted to fit in with wider timelines and publication deadlines.

Meetings should be ideally held every 4 weeks.

Roland:

Organise a virtual meeting mid-September to collate information from working groups

Look at convening physical meetings perhaps as a satellite meeting to larger imagingbased conferences eg. ELMI, EMC.

Alex L & Glyn N:

Website. Look into modifying existing wordpress UK QC website for QUAREP LiMi. To report back to WG9 and next QUAREP LiMi meeting