

05-08-2020

Participants

Konstantin, Steve, Ulrike, Miso, Alex, Orestis, Nathalie, Werner, Roland, Ulrike

Agenda

1. Very brief round of presentation
2. Agree on chair and co-chair: Laurent and Nathalie
3. Define how we want to work, constitution of sub-groups, shared documents, etc.
4. Decide time-lines
5. Other

Purpose: The ISO document focuses on LSMs but we will extend on the long-term the scope of discussions to all types of scopes and different light sources. On short term, we will stick to lasers and confocal microscopes (LSMs and spinning-disks).

We should also speak about the detectors/powermeters. We should have the companies who manufacture them on board. Argolight would like to be only observers. We need to make people aware of importance of calibration of the detector. Ulrike will consolidate a list of powermeters and manufacturers and will contact them or make sure they have been contacted. She will keep Roland in the loop.

David Grunwald develops his own device and should be contacted as well (Metamax).

We should make people aware of the importance of the calibration of the device.

We recommend to use an objective, but it is not an absolute requirement. Advantages of using an objective (by opposition to no objective):

1. Safety of use
2. To make sure the illuminated area is smaller than the sensor area.
3. Focusing onto the sensor area is also easier with an objective.

We will state that, in the community (users and microscope manufacturers), the 10x lens is the most used magnification for this application.

Stanley Schwartz indicates some useful links about the ISO norms to the group:

ISO 19056-1:2015 Microscopes — Definition and measurement of illumination properties - Part 1: Image brightness and uniformity in bright field microscopy <https://www.iso.org/obp/ui/#iso:std:iso:19056:-1:ed-1:v1:en>

ISO 19056-2:2019 Microscopes — Definition and measurement of illumination properties - Part 2: Illumination properties related to the colour in bright field microscopy
<https://www.iso.org/obp/ui/#iso:std:iso:19056:-2:ed-1:v1:en>

ISO/CD 19056-3 Microscopes — Definition and measurement of illumination properties- Part 3: Incident light fluorescence microscopy with incoherent light sources
<https://www.iso.org/standard/77329.html?browse=tc> Under development 2020 right now

RN: Power should be discussed to avoid artifacts due to AOTFs. What are good values? Roland suggests we do the tests ourselves.

Konstantin: Integration time is also dependent on the type of power-meter.

Meetings should last 2 hours to have enough time and always finish 5min before the hour or half hour.

We should also discuss and give advice about fibers: laser light come into the scope via fibers, which can cause issues (e.g. the polarization of the light may change if someone moves the light source, absence of anti-vibration table can cause artifacts as well).

In general, the measurement will tell if there is a problem, but not which one. If there is an anomaly, then one needs to investigate. We need to inform people about sources of variations and fluctuations. We can give troubleshooting charts. Once to give also standards and benchmark values to know what is normal or not.

2 parts for recommendations:

1-Instrument calibration stability: power lost over light path? Linearity? Stability?

2-Sample exposure to laser (Biologist perspective): requires specification of laser power at objective.

Action Items:

- Next meeting date:
- Ulrike to contact all power meter companies