**Spectral photogrammetry protocol V.2**

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**Acquisition**

1. Place de specimen at the center of the turntable with scales, photogrammetry marker and MSI calibration card (CHSOS).

**Citation:** Aurore Mathys (08/14/2019). Spectral photogrammetry protocol. [https://dx.doi.org/10.17504/protocols.io.zzgf73w](https://dx.doi.org/10.17504/protocols.io.zzgf73w)
2. Setup lamp and camera distance. Place the camera at approximately 30°.

3. Setup the correct exposure for each wavelength and verify that the exposure is correct in spectrashoot using the MSI calibration card. Adjust exposure until the specimen is correctly lit.

4. Start capturing: for one specimen position capture at all the 15 wavelengths + white light. Then add the UV-pass filter and capture pictures in the UV wavelengths (UVR). Next place the UV-cut off filter and capture picture for each UV wavelengths (UVF). Pictures should be captured in raw format.

5. Rotate the turntable of 10° and repeat step 4. Do this for the complete rotation.

6. Move the camera at an angle of 60° at the approximately the same distance than previously and repeat the operation for the complete rotation.

7. If necessary turn the specimen and repeat the process for as many rotation/views as necessary.

Pre-processing

8. Separate the wavelengths in different folders.

Processing

9. Open Agisoft Photoscan and create a chunk for each wavelengths (rename the chunks accordingly). Import the pictures.

10. Go to workflow > batch process and add the following step: align pictures (highest), build dense cloud (high), build mesh (high).

11. Repeat the processing 3 times to make sure the results are reliable.

12. If the results are reliable, export the models as .stl for surface analysis.