

Holographic Multipoint Raman Microscopy

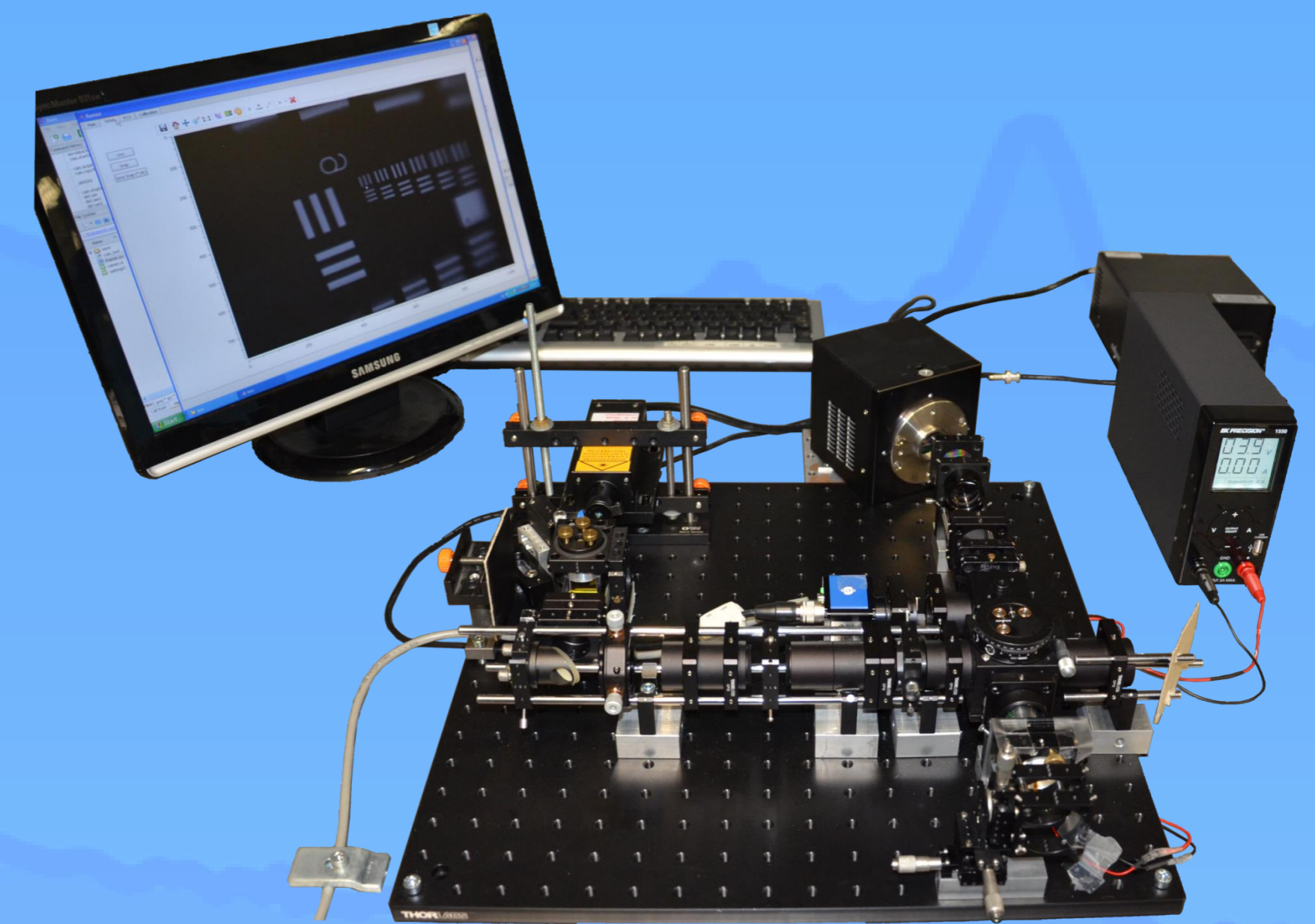
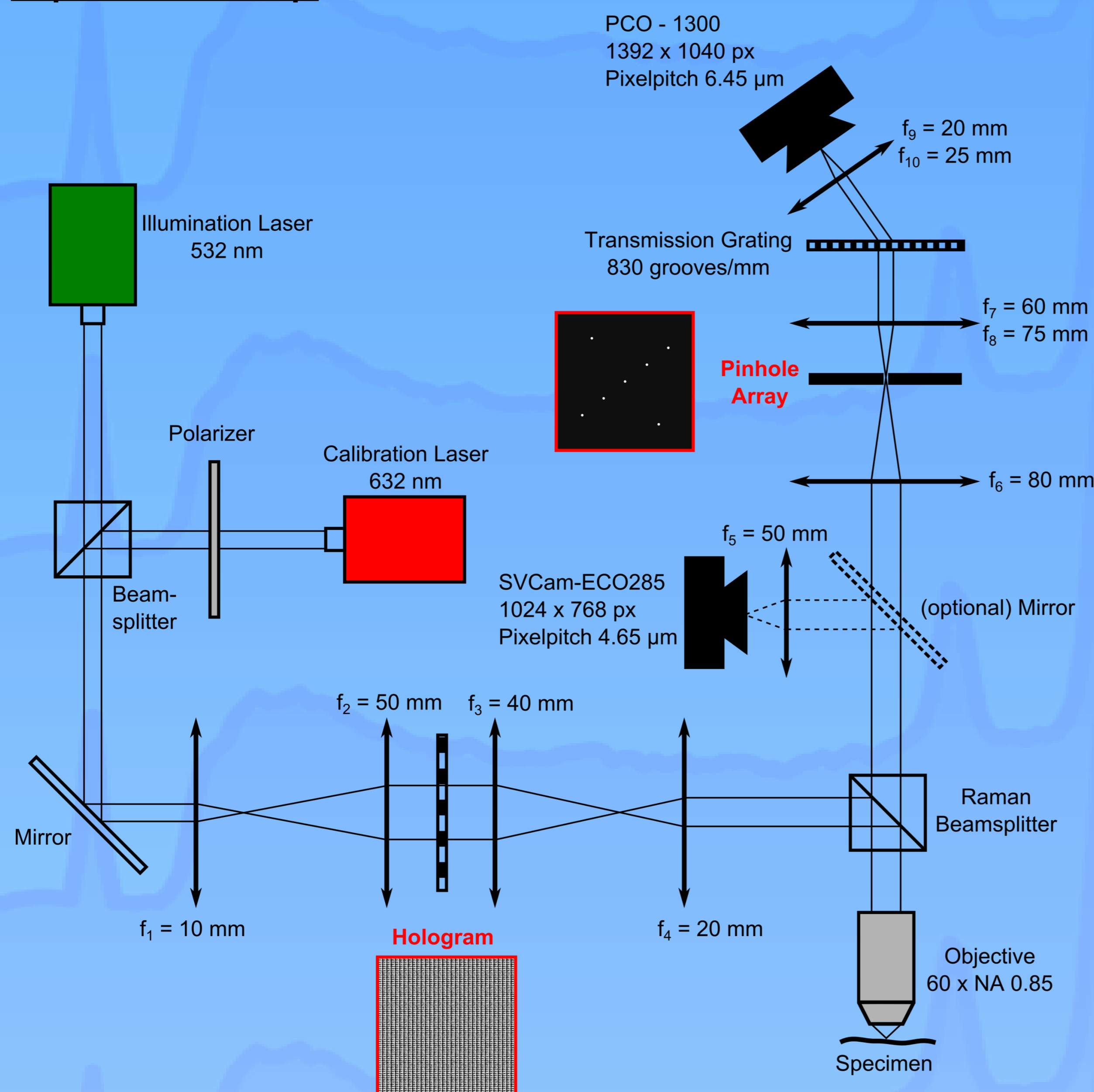


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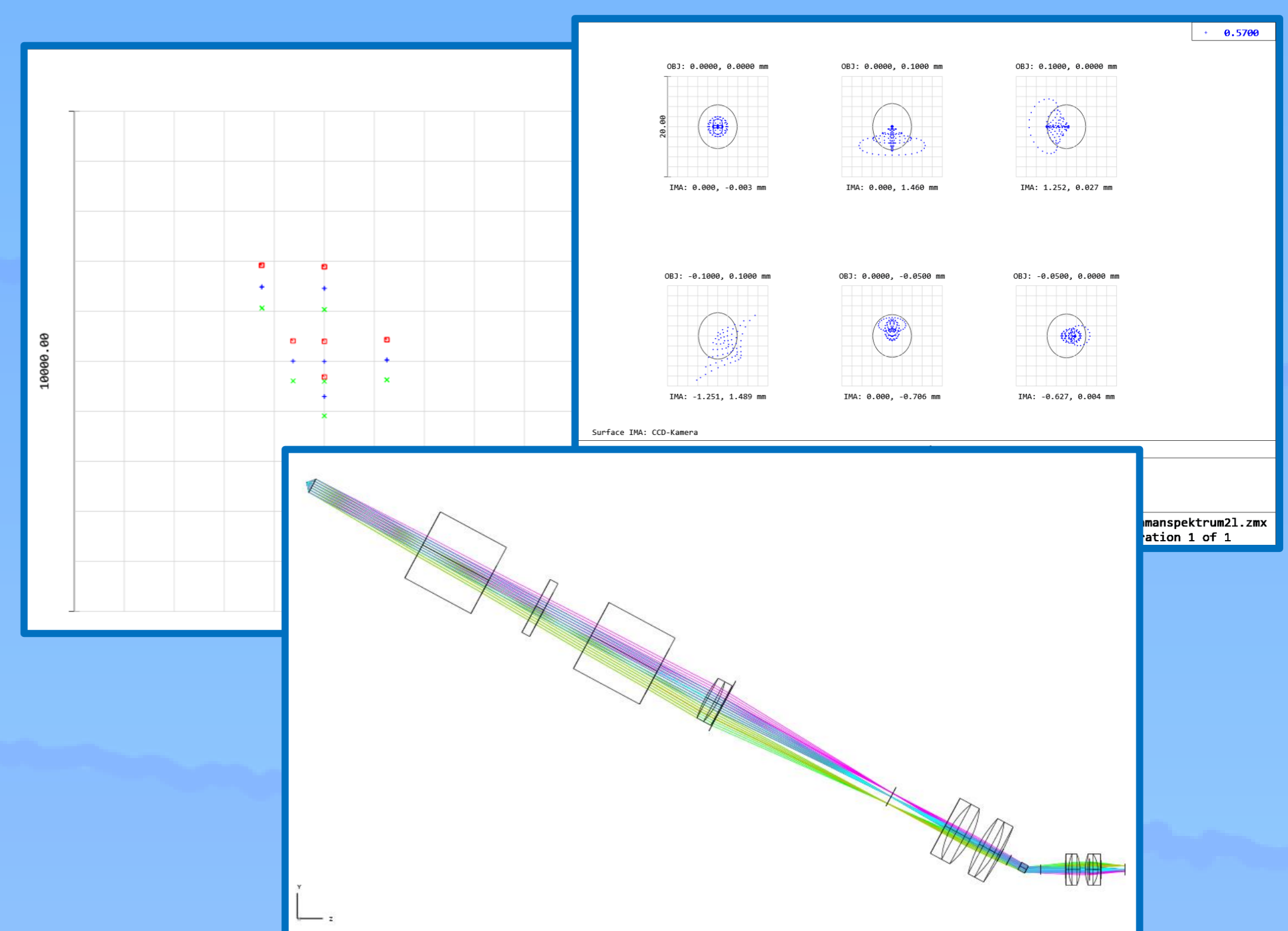
Motivation

Due to the weak Raman signal, it is in general unavoidable to use long integration times for the sensor to detect the spectrum. Following this, scanning a spaciouly object is a time consuming process, what is disadvantageous for some application as for example an in vitro cancer detection during an operation. Therefore, we propose a system which is suitable to measure multiple spatial distributed points in parallel using a holographic optical setup.

Optical Setup

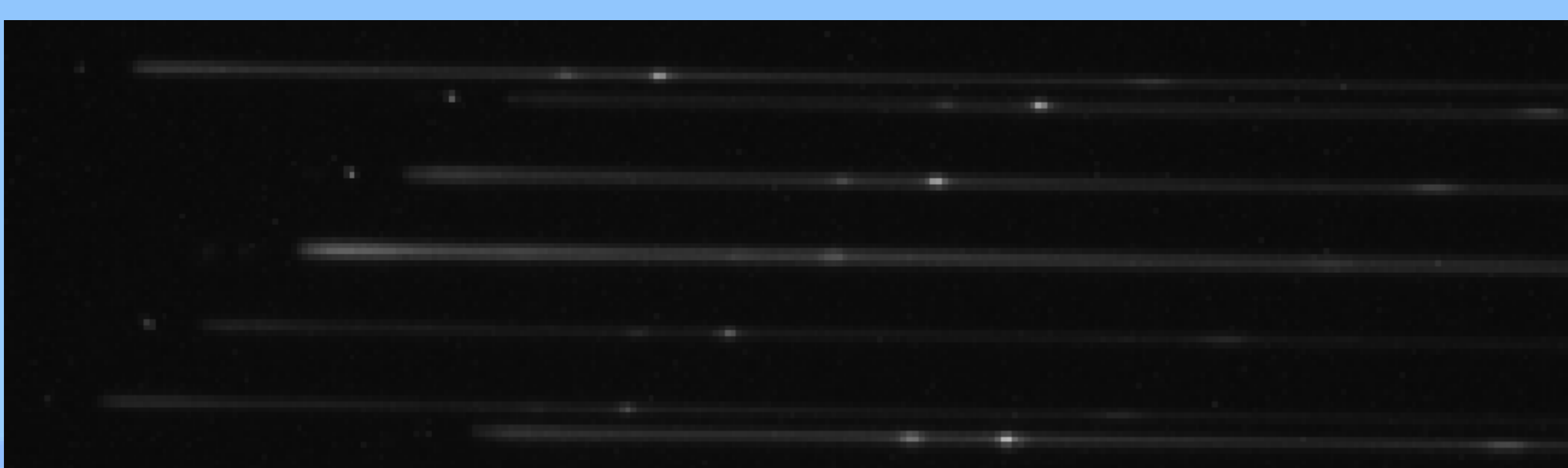


Zemax (Imaging Part)

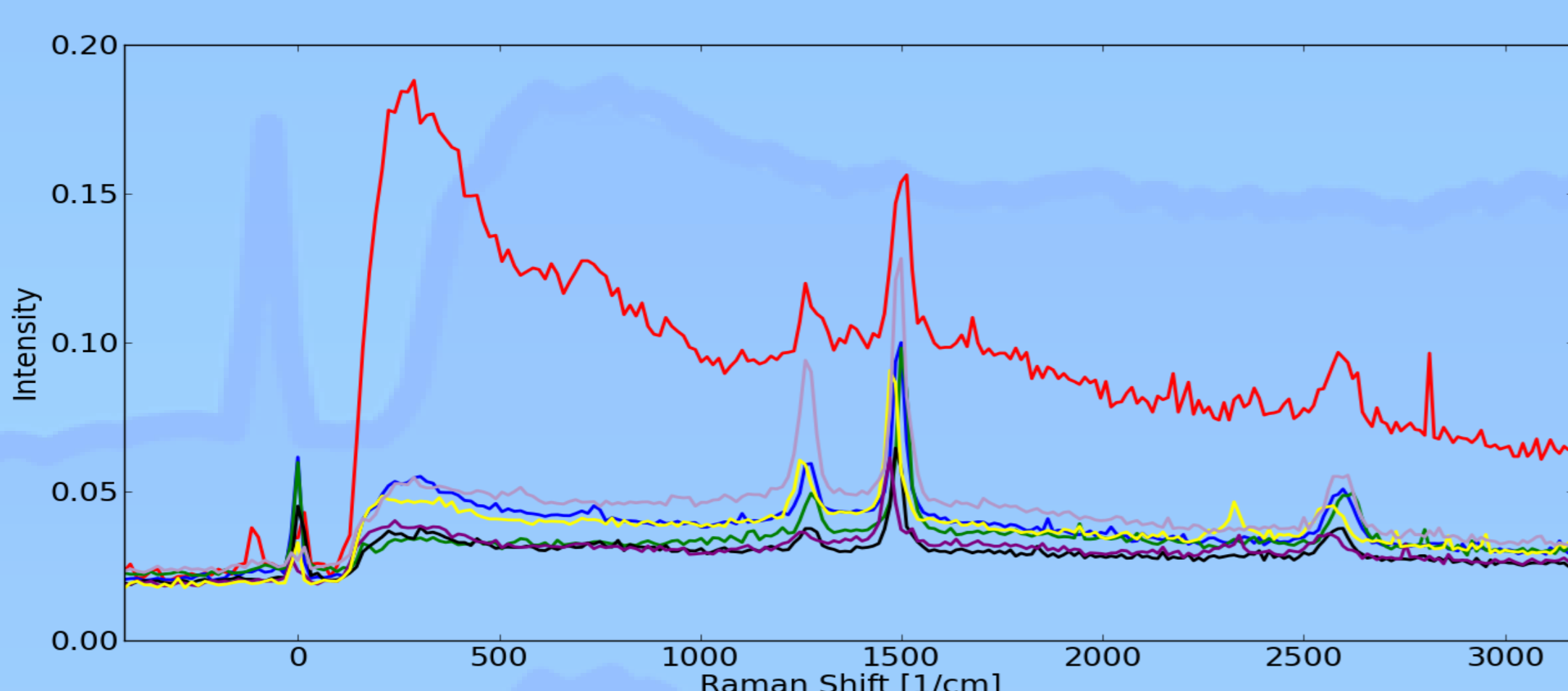


Measurement Results Graphite (Pencil)

Camera Image



Spectra



Conclusion

It is possible to measure multiple Raman spectra using a hologram in combination with a pinhole array in an intermediate image plane, functioning as a confocal filter.

This approach is scalable, using a stronger laser and a different hologram / pinhole array combination.

Acknowledgement

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