Inexpensive Raman Spectrometer for Undergraduate and Graduate Experiments and Research

Christian Mohr, Claire L. Spencer and Michael Hippler*

*Department of Chemistry, University of Sheffield, Sheffield S3 7HF, England; *M.Hippler@sheffield.ac.uk*

Supplementary Material

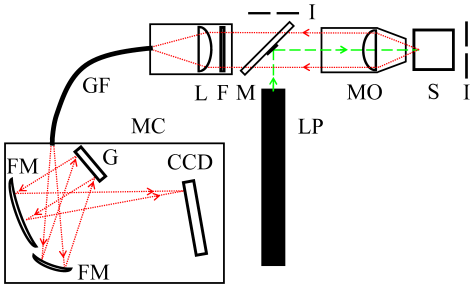
In this Supplementary Material section, we provide additional details for the inexpensive Raman Spectrometer for Undergraduate and Graduate Experiments and Research. Key parts for the Raman spectrometer, including, for convenience part number and supplier, are listed in the table below. Please note that similar performance can also be expected from comparable models and different suppliers. Mention of supplier names and model numbers does not necessarily imply recommendation of these products, nor does it imply that comparable products from another vendor would be less suitable for this application. We also include a scheme and photographs of the setup as implemented in Sheffield (see figure below).

Table 1 (supplement). List of some key parts for the Raman spectrometer [a)]

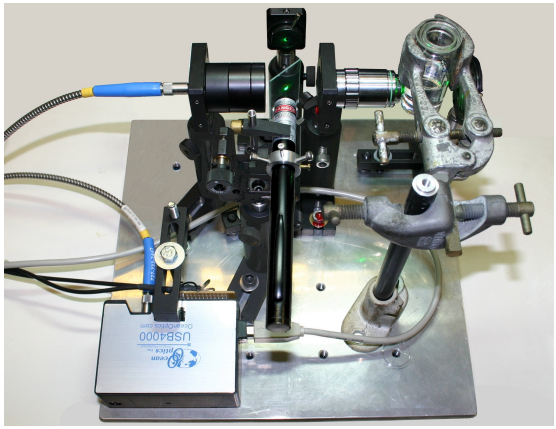
Part number	Supplier	Description
USB4000	Ocean Optics	monochromator (420-736 nm), 25 µ m entrance slit, 1200 lines/mm holographic grating, 3648 pixel diode array CCD, USB computer connector, SMA fiber patch cable
18 LAB 191	Melles Griot	4 mW green laser pointer
028-0220	OptoSigma	20x, 0.50 NA microscope objective
NF01-532S-25	Semrock	532 nm stop line notch filter (S grade)
OG550	Schott	1" orange color glass filter
LA1951-A	Thorlabs	1" AR coated plano-convex lens, *f*=25.4 mm
CXA-145-040C	Hellma	10 mm glass cuvette
KM100V/M	Thorlabs	V-clamp mount
SM1L10	Thorlabs	1" lens tube, 1" long (for *f*=25.4 mm lens)
SM1L03	Thorlabs	1" lens tube, 0.3" long (for filter)
SM1A3	Thorlabs	adapter RMS (microscope) to SM1 cage plate mount
SM1SMA	Thorlabs	adapter SMA (glass fiber) to SM1 cage plate mount
various	Thorlabs	irises, posts and holders, bases, SM1 mounts, cage plates

[a)] Part numbers and suppliers given for convenience; similar performance can be expected from comparable products from other suppliers.

a)



b)



c)

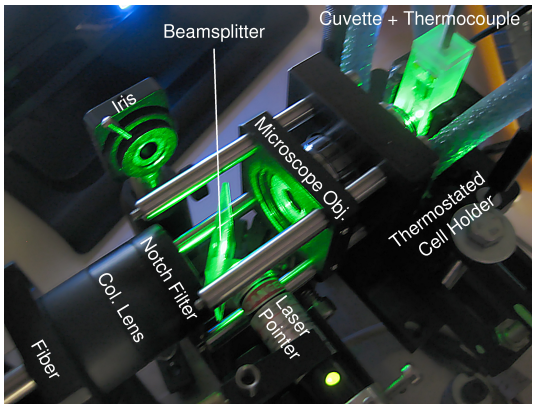


Figure 1 (supplement). Setup of the Raman spectrometer.

a) Scheme of the setup. LP: laser pointer, M: mirror (glass slide with 2× 3 mm Al spot), MO: microscope objective, S sample, I: irises, F: filter, L: lens, GF: glass fiber. MC: monochromator with FM: focusing mirrors, G: grating and CCD: linear charge coupled device detector array.

b) Corresponding photograph of the entire setup.

c) Photograph of some details of the spectrometer