

Materials List for:

High-speed Continuous-wave Stimulated Brillouin Scattering Spectrometer for Material Analysis

Itay Remer¹, Lear Cohen¹, Alberto Bilenca^{1,2}

¹Biomedical Engineering Department, Ben-Gurion University of the Negev

²Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev

Correspondence to: Alberto Bilenca at bilenca@bgu.ac.il

URL: <https://www.jove.com/video/55527>

DOI: [doi:10.3791/55527](https://doi.org/10.3791/55527)

Materials

Name	Company	Catalog Number	Comments
Probe diode laser head and controller	Toptica Photonics	SYST DL-100-DFB	Quantity: 1
Pump amplified diode laser and controller	Toptica Photonics	SYST TA-pro-DFB	Quantity: 1
FC/APC fiber dock	Toptica Photonics	FiberDock	Quantity: 3
High power single mode polarization maintaining FC/APC fiber patchcord	Toptica Photonics	OE-000796	Quantity: 1
FC/APC fiber collimation with adjustable collimation optics	Toptica Photonics	FiberOut	Quantity: 1
FC/APC fiber fixed collimator	OZ Optics	HPUCO-33A-780-P-6.1-AS	Quantity: 1
Single mode polarization maintaining fiber splitter 33:67	OZ Optics	FOBS-12P-111-4/125-PPP-780-67/33-40-3A3A3A-3-1	Quantity: 1
Single mode polarization maintaining fiber splitter 50:50	OZ Optics	FOBS-12P-111-4/125-PPP-780-50/50-40-3S3A3A-3-1	Quantity: 1
f=25 mm, Ø1/2" Achromatic Doublet, SM05-Threaded Mount, ARC: 650-1050 nm	Thorlabs	AC127-025-B-ML	Quantity: 1
f=30 mm, Ø1" Achromatic Doublet, SM1-Threaded Mount, ARC: 650-1050 nm	Thorlabs	AC254-30-B-ML	Quantity: 2
f=50 mm, Ø1" Achromatic Doublet, SM1-Threaded Mount, ARC: 650-1050 nm	Thorlabs	AC254-50-B-ML	Quantity: 1
f=100 mm, Ø1" Achromatic Doublet, SM1-Threaded Mount, ARC: 650-1050 nm	Thorlabs	AC254-100-B-ML	Quantity: 1
f=200 mm, Ø1" Achromatic Doublet, SM1-Threaded Mount, ARC: 650-1050 nm	Thorlabs	AC254-200-B-ML	Quantity: 1
Ø1/2" Broadband Dielectric Mirror, 750-1100 nm	Thorlabs	BB05-E03	Quantity: 4
Ø1" Broadband Dielectric Mirror, 750-1100 nm	Thorlabs	BB1-E03	Quantity: 2
1" Polarizing beamsplitter cube, 780 nm	Thorlabs	PBS25-780	Quantity: 1
Ø1" Linear polarizer with N-BK7 protective windows, 600-1100 nm	Thorlabs	LPNIRE100-B	Quantity: 1
Shearing Interferometer with a 1-3 mm Beam Diameter Shear Plate	Thorlabs	SI035	Quantity: 1

6-Axis Locking kinematic optic mount	Thorlabs	K6XS	Quantity: 4
Compact five-axis platform	Thorlabs	PY005	Quantity: 1
Pedestal mounting adapter for 5-axis platform	Thorlabs	PY005A2	Quantity: 1
Polaris low drift Ø1/2" kinematic mirror mount, 3 adjusters	Thorlabs	POLARIS-K05	Quantity: 4
Lens mount for Ø1" optics	Thorlabs	LMR1	Quantity: 5
Adapter with external SM1 threads and Internal SM05 threads, 0.40" thick	Thorlabs	SM1A6T	Quantity: 1
Rotation mount for Ø1" optics	Thorlabs	RSP1	Quantity: 2
1" Kinematic prism mount	Thorlabs	KM100PM	Quantity: 1
Graduated ring-activated SM1 iris diaphragm	Thorlabs	SM1D12C	Quantity: 1
Post-mounted iris diaphragm, Ø12.0 mm max aperture	Thorlabs	ID12	Quantity: 2
1/2" translation stage with standard micrometer	Thorlabs	MT1	Quantity: 3
Ø1" Pedestal pillar post, 8-32 taps, L = 1"	Thorlabs	RS1P8E	Quantity: 1
Ø1" Pedestal pillar post, 8-32 taps, L = 1.5"	Thorlabs	RS1.5P8E	Quantity: 2
Ø1" Pedestal pillar post, 8-32 taps, L = 2"	Thorlabs	RS2P8E	Quantity: 4
Ø1" Pedestal pillar post, 8-32 taps, L = 2.5"	Thorlabs	RS2.5P8E	Quantity: 1
Ø1" Pedestal pillar post, 8-32 taps, L = 3"	Thorlabs	RS3P8E	Quantity: 4
Short clamping fork	Thorlabs	CF125	Quantity: 12
Mounting base	Thorlabs	BA1S	Quantity: 8
Large V-Clamp with PM4 Clamping Arm, 2.5" Long, Imperial	Thorlabs	VC3C	Quantity: 1
Ø1/2" Post holder, spring-loaded hex-locking thumbscrew, L = 1"	Thorlabs	PH1	Quantity: 2
Ø1/2" Post holder, spring-loaded hex-locking thumbscrew, L = 1.5"	Thorlabs	PH1.5	Quantity: 2
Ø1/2" Post holder, spring-loaded hex-locking thumbscrew, L = 2"	Thorlabs	PH2	Quantity: 6
Ø1/2" Optical post, SS, 8-32 setscrew, 1/4"-20 tap, L = 1"	Thorlabs	TR1	Quantity: 2
Ø1/2" Optical post, SS, 8-32 setscrew, 1/4"-20 tap, L = 1.5"	Thorlabs	TR1.5	Quantity: 2
Ø1/2" Optical post, SS, 8-32 setscrew, 1/4"-20 tap, L = 2"	Thorlabs	TR2	Quantity: 6
Aluminum breadboard 18" x 24" x 1/2", 1/4"-20 taps	Thorlabs	MB1824	Quantity: 1
12" Vertical bracket for breadboards, 1/4"-20 holes, 1 piece	Thorlabs	VB01	Quantity: 2
Si photodiode, 40 ns Rise time, 400 - 1100 nm, 10 mm x 10 mm active area	Thorlabs	FDS1010	Quantity: 1

Waveplate, zero order, 1/4 wave 780nm	Tower Optics	Z-17.5-A-.250-B-780	Quantity: 2
Waveplate, zero order, 1/2 wave 780nm	Tower Optics	Z-17.5-A-.500-B-780	Quantity: 1
Fiber coupled ultra high speed photodetector	Newport	1434	Quantity: 1
Gimbal optical mirror mount	Newport	U100-G2H ULTIMA	Quantity: 3
linear stage with 25 mm travel range	Newport	M-423	Quantity: 1
Lockable differential micrometer, 25 mm coarse, 0.2 mm fine, 11 lb. load	Newport	DM-25L	Quantity: 1
XYZ Motor linear stage	Applied Scientific Instrumentation	LS-50	Quantity: 3
Stage controller	Applied Scientific Instrumentation	MS-2000	Quantity: 1
Sample holder	Home made	Custom	Quantity: 1
Rubidium 85 Fused Silica spectroscopy cell with flat AR-coated windows, 150 mm length, 25mm diameter	Photonics Technologies	SC-RB85-25x150-Q-AR	Quantity: 1
Thermally conductive pad 300 mm x 300 mm	BERGQUIST	Q3AC 300MMX300MM SHEET	Quantity: 1
Heat tape 0.15 mm x 2.5 mm x 5 m, 4.29 W/m	KANTHAL	8908271	Quantity: 1
Polytetrafluoroethylene tape 1/2" x 12 m	Teflon tape	R.G.D	Quantity: 1
Reflecting Bragg grating bandpass filter	OptiGrate	SPC-780	Quantity: 1
High frequency aousto optic modulator	Gooch and Housego	15210	Quantity: 1
Aousto optic modulator RF driver, frequency: 210 MHz	Gooch and Housego	MHP210-1ADS2-A1	Quantity: 1
High frequency lock-in amplifier	Stanford Research Systems	SR844	Quantity: 1
Frequency counter	Phase Matrix	EIP 578B	Quantity: 1
Arbitrary function Generator	Tektronix	AFG2021	Quantity: 2
Data acquisition (DAQ) module	National Instruments	NI USB-6212 BNC	Quantity: 1
Data acquisition (DAQ) software	National Instruments	LabVIEW 2014	Quantity: 1
Regulated DC power supply dual 0-30V 5A	MEILI	MCH-305D-ii	Quantity: 1
Thermocouple	MRC	TP-01	Quantity: 1
Thermometer	MRC	TM-5007	Quantity: 1
Coaxial low pass filter DC-1.9 MHz	Mini Circuits	BLP-1.9+	Quantity: 1
20% lipid-emulsion	Sigma-Aldrich	I141-100ml	Quantity: 1
round 25 mm diameter cover glass thick:1 #	Menzel Glaser	150285	Quantity: 1
Computational software	MathWorks	MATLAB 2015a	