

SPQM Equipment

Equipment	Company	Part Number	EACH	Cost EA	Total Cost
<b>Down Conversion Set-up</b>					
Violet laser - 405 nm, 50 mW, circularized beam	PowerTechnology	IQ1C50(405-60B)G26	1	\$6,572	\$6,572
Violet laser power supply	PowerTechnology	LDCU8	1	\$175	\$175
Violet laser mounting brackets	PowerTechnology	MB6	1	\$75	\$75
Violet laser connector cable	PowerTechnology	IQ1C-ACS-PC/LDCU	1	\$25	\$25
Mounting posts for violet laser	Thorlabs	RS2P	2	\$24	\$47
Mounting post extensions for violet laser	Thorlabs	RS05	2	\$16	\$32
Forks for mounting posts for violet laser	Thorlabs	CF125	2	\$8	\$17
Beam block for violet laser	Thorlabs	LB1	1	\$45	\$45
2 turning mirrors for violet light, with mount	Thorlabs	KM100-E02	2	\$105	\$211
2 irises for defining violet beam	Thorlabs	ID12	2	\$42	\$84
Violet half-wave plate	CVI Melles Griot	QWPO-400-05-2-R10	1	\$515	\$515
	Potential Cheaper Option: Thorlabs	WPH05M-405	0	\$407	\$0
Mount for violet half-wave plate	Thorlabs	RSP1	1	\$81	\$81
Down-conversion crystal	Newlight Photonics	BBO: 5x5x3 mm, theta = 29.3 deg, Type I PDC, cone angle 3 deg, AR coated at 810/405 nm, mounted 1" anodized Al holder	1	\$499	\$499
Mount for down-conversion crystal	Thorlabs	KS1	1	\$81	\$81
Univerisal post holders and bases	Thorlabs	UPH2	7	\$29	\$200
2" posts	Thorlabs	TR2	7	\$5	\$37
		<b>Subtotals:</b>	<b>33</b>	<b>-</b>	<b>\$8,696</b>
<b>Photon Counting Module (4-channel)</b>					
4-channel single photon counting module	PerkinElmer	SPCM-AQ4C	1	\$9,000	\$9,000
Input-output board for SPCM	PerkinElmer	SPCM-AQ4C-IO	1	\$265	\$265
Box for SPCM	-	Homemade	-	-	-
Power supplies for SPCM	-	Homemade	-	-	-
Black jacketed fibers for SPCM input	PerkinElmer	SPCM-QC9	4	\$150	\$600
Field programmable gate array coincidence counting unit	Altera	DE2	1	\$269	\$269
Converter and voltage divider box for SPCM out to Altera in	-	Homemade	-	-	-
Computer with LabVIEW for data collection	-	existing	-	-	-
		<b>Subtotals:</b>	<b>7</b>	<b>-</b>	<b>\$10,134</b>
<b>Visible Light Filtering Unit (4-channel)</b>					
Fiber coupling lenses for filtering unit	Thorlabs	F220FC-B	8	\$124	\$992
Ring mounts for fiber coupling lenses in filtering unit	Thorlabs	AD11F	8	\$27	\$216

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1" cage mounts for filtering unit	Thorlabs	KC1-T	4	\$86	\$344	
1" lens tube for RG 780 filter in filtering unit	Thorlabs	SM1L10	4	\$15	\$60	
Extra retaining rings for 1" lens tube	Thorlabs	SM1RR	4	\$5	\$20	
Cage assembly to hold 1" lens tube in filtering unit	Thorlabs	CP02	4	\$16	\$66	
Cage Rods for Assembly	Thorlabs	ER3	16	\$7	\$111	
RG780 - 780 nm longpass filter in filtering unit	Thorlabs	FGL780	4	\$49	\$198	
62.5 micron, Multimode, 1 m Optical Fibers with FC ends	Thorlabs	M31L01	4	\$44	\$177	
2" post holders	Thorlabs	PH2-ST	4	\$8	\$31	
2" posts	Thorlabs	TR2	4	\$5	\$21	
Narrow bases	Thorlabs	BA1	4	\$6	\$22	
<i>May be cheaper way to accomplish this task.</i>			<b>Subtotals:</b>	<b>68</b>	<b>-</b>	
<b>\$2,258</b>						
<b>Fiber-Coupled Detectors (4-channel)</b>						
Fiber coupling lenses for filtering unit	Thorlabs	F220FC-B	4	\$124	\$496	
Ring mounts for fiber coupling lenses in filtering unit	Thorlabs	AD11F	4	\$27	\$108	
1" mount for fiber lens	Thorlabs	KM100T	4	\$60	\$241	
62.5 micron, Multimode, 1 m Optical Fibers with FC ends	Thorlabs	M31L01	4	\$44	\$177	
Fiber-to-Fiber Coupler for Swapping	Thorlabs	FCB1	2	\$53	\$105	
2" post holders	Thorlabs	PH2-ST	4	\$8	\$31	
2" posts	Thorlabs	TR2	4	\$5	\$21	
Full bases for rails	Thorlabs	BA2	4	\$7	\$29	
Large rail for A and B detectors	-	existing	-	-	-	
Narrow bases	Thorlabs	BA1	4	\$6	\$22	
			<b>Subtotals:</b>	<b>34</b>	<b>-</b>	
<b>\$1,230</b>						
<b>Grangier Experiment (3-detector)</b>						
Polarizing beamsplitter cube for down-conversion light	CVI Melles Griot	PBSH-670-980-050	1	\$275	\$275	
<i>Potential Cheaper Option:</i>		Thorlabs	PBS102	0	\$171	\$0
Polarizing beam splitter mount	Thorlabs	KM100P	1	\$59	\$59	
Clamping arm for polarizing beam splitter mount	Thorlabs	PM1	1	\$10	\$10	
Down conversion half-wave plate	CVI Melles Griot	QWPO-810-05-2-R10	1	\$515	\$515	
<i>Potential Cheaper Option:</i>		Thorlabs	WPH05M-808	0	\$407	\$0
Mount for down-conversion half-wave plate	Thorlabs	RSP1	1	\$81	\$81	
Mounted irises for A and B arm alignment	Thorlabs	ID15	4	\$41	\$164	
10 nm bandpass filters for A and B arms	Thorlabs	FB810-10	2	\$82	\$164	
Mounts for 10 nm bandpass filters	Thorlabs	LMR1	2	\$16	\$31	
2" Posts for optics/mounts	Thorlabs	TR2	8	\$5	\$42	
1/2" Universal Post Holders	Thorlabs	UPH2	8	\$29	\$229	
			<b>Subtotals:</b>	<b>29</b>	<b>\$1,570</b>	

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<b>Laser Photon Statistics Experiment (2-detector)</b>						
2 turning mirrors (for HeNe)	Thorlabs	BB1-E02	2	\$75	\$150	
Polarized HeNe laser	ebay	-	1	\$100	\$100	
HeNe mount	Thorlabs	VC3	1	\$42	\$42	
Turning mirror mounts	Thorlabs	KM100	2	\$40	\$80	
Pickoff turning mirror base	Thorlabs	NX1F	1	\$79	\$79	
Variable reflective ND Filter for beam attenuation	Thorlabs	NDL-10C-4	1	\$78	\$78	
Variable reflective ND Filter mount	Thorlabs	SFH2	1	\$53	\$53	
Fixed absorptive ND Filter for beam attenuation (OD 5.0)	Thorlabs	NE50B	1	\$38	\$38	
Fixed absorptive ND Filter for beam attenuation (OD 4.0)	Thorlabs	NE40B	1	\$38	\$38	
Fixed absorptive ND Filter for beam attenuation (OD 3.0)	Thorlabs	NE30B	1	\$38	\$38	
Fixed absorptive ND Filter mounts	Thorlabs	TRF90	3	\$62	\$185	
Assembly rod for ND Filter mounts	Thorlabs	ER2	1	\$6	\$6	
2" Posts for optics/mounts	Thorlabs	TR2	6	\$5	\$31	
1/2" Normal Post Holders for HeNe	Thorlabs	PH1.5-ST	2	\$7	\$14	
1/2" Universal Post Holders	Thorlabs	UPH2	4	\$29	\$114	
Full Base for HeNe	Thorlabs	BA2	1	\$7	\$7	
		<b>Subtotals:</b>	<b>29</b>	<b>-</b>	<b>\$1,054</b>	
<b>Single Photon Interference and Quantum Eraser</b>						
Mirrors for down-converted light	Thorlabs	BB1-E03	4	\$75	\$300	
Stable mounts for mirrors	Thorlabs	KS1	4	\$81	\$326	
Base for pickoff turning mirror	Thorlabs	NX1F	1	\$79	\$79	
Non-polarizing beamsplitter cubes	Thorlabs	BS014	2	\$198	\$396	
Beam splitter mounts	NewFocus	9411	2	\$325	\$650	
Linear polarizer	Thorlabs	LPVIS050	1	\$328	\$328	
Rotation mount for 1/2" linear polarizer	Thorlabs	RSP05	1	\$68	\$68	
Down conversion half-wave plates	CVI Melles Griot	QWPO-810-05-2-R10	2	\$515	\$1,030	
	<b>Potential Cheaper Option:</b>	<b>Thorlabs</b>	<b>WPH05M-808</b>	<b>0</b>	<b>\$407</b>	<b>\$0</b>
Mount for down-conversion half-wave plates	Thorlabs	RSP1	2	\$81	\$162	
Automated piezo stage and strain gauge reader	Thorlabs	TSGNF5	1	\$2,041	\$2,041	
Power supply for piezo stage	Thorlabs	TPS002	1	\$111	\$111	
	<b>Potential Cheaper Option:</b>	<b>-</b>	<b>Homemade pizeo</b>	<b>-</b>	<b>-</b>	<b>-</b>
Translation stage for coarse adjustment (OPTIONAL)	Thorlabs	PT1	1	\$259	\$259	
Translation stage adapter (OPTIONAL)	Thorlabs	PT101	1	\$16	\$16	
1" dia. mounting posts: 0.75", 1", 1.5", 2", 2", 3" (our heights)	Thorlabs	RS*P	6	\$23	\$138	
1" dia. mounting post extensions: 0.5", 0.5", 0.75", 1.5"	Thorlabs	RS*P	4	\$17	\$68	
Forks for 1" diameter mounting posts	Thorlabs	CF125	6	\$8	\$50	
2" Posts	Thorlabs	TR2	5	\$6	\$30	
Universal Post Holders	Thorlabs	UPH2	4	\$29	\$114	

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Mini Maglite (non-LED version) for white-light source	various	-	1	\$10	\$10
Mount for Maglite	Thorlabs	VC1	1	\$35	\$35
90 degree elbow for linear polarizer mount	Thorlabs	RA90	1	\$10	\$10
Spectrometer for white-light fringes	Ocean Optics	USB 650 Red Tide	1	\$1,154	\$1,154
	Potential Cheaper Option:	-	0	\$0	\$0
FC-to-SMA fiber adapter (for Red Tide)	Thorlabs	ADAFCSMA1	1	\$42	\$42
		<b>Subtotals:</b>	<b>53</b>	<b>-</b>	<b>\$7,416</b>
<b>Misc</b>					
Table clamps ("dogs")	Thorlabs	CL5	15	\$4	\$60
Slip-on Collars to set Mount Height	Thorlabs	R2	12	\$4	\$42
		<b>Subtotals:</b>	<b>27</b>	<b>-</b>	<b>\$102</b>
		<b>Grand Total:</b>	<b>280</b>	<b>-</b>	<b>\$32,460</b>