

Materials List for:

Experimental Methods for Trapping Ions Using Microfabricated Surface Ion Traps

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Materials

Name	Company	Catalog Number	Comments
photoresist used for 2- μ m spin coating	AZ Materials	AZ7220	Discontinued. Easily replaced by other alternative photoresist product.
photoresist used for 6- μ m spin coating	AZ Materials	AZ4620	Discontinued. Easily replaced by other alternative photoresist product.
ceramic chip carrier	NTK	IPKX0F1-8180BA	
epoxy compound	Epotek	353ND	
Plasma enhanced chemical vapor deposition (PECVD) system	Oxford Instruments	PlasmaPro System100	
Low pressure chemical vapor deposition (LPCVD) system	Centrotherm	E-1200	
Furnace	Seltron	SHF-150	
Sputter	Muhan Vacuum	MHS-1500	
Manual aligner	Karl-Suss	MA-6	
Deep Si etcher	Plasma-Therm	SLR-770-10R-B	
Inductive coupled plasma (ICP) etcher	Oxford Instruments	PlasmaPro System100 Cobra	
Reactive ion etching (RIE) etcher	Applied Materials	P-5000	
Boundary element method (BEM) software	CPO Ltd.	Charged Particle Optics	
Single crystalline (100) silicon wafer	STC	4SWP02	100 mm / (100) / P-type / SSP / 525 \pm 25 μ m
metal tubes	Mcmaster-carr	89935K69	316 Stainless Steel Tubing, 0.042" OD, 0.004" Wall Thickness
Yb piece	Goodfellow	YB005110	Ytterbium wire, purity 99.9%
enriched ¹⁷¹ Yb	Oak Ridge National Laboratory	Yb-171	https://www.isotopes.gov/catalog/product.php?element=Ytterbium
tantalum foil	The Nilaco Corporation	TI-453401	0.25x130x100mm 99.5%
Kapton-insulated copper wire	Accu-glass	18AWG (silver plated copper wire kapton insulated)	
residual gas analyzer (RGA)	SRS	RGA200	
turbo pump	Agilent	Twistorr84 FS	
all-metal valve	KJL	manual SS All-Metal Angle Valves (CF flanged)	
Leak detector (used as a rough pump)	Varian	PD03	
ion gauges	Agilent	UHV-24p	

ion pump	Agilent	Vaclon Plus 20	
NEG pump	SAES Getters	CapaciTorr D400	
spherical octagon	Kimball Physics	MCF600-SphOct-F2C8	
ZIF socket	Tactic Electronics	P/N 100-4680-002A	
multi-pin feedthroughs	Accu-Glass	6-100531	
25 D-sub gender adapters	Accu-Glass	104101	
Recessed viewport	Culham Centre for Fusion Energy	100CF 316LN+20.9 Re-Entrant 316 (Custom order)	Disc material: 60cv Fused Silica 4mm THK, TWE Lambda 1/10, 20/10 Scratch-Dig
Recessed viewport AR coating	LaserOptik	AR355nm/0-6° HT370-650nm/0-36° on UHV (Custom order)	AR coating was performed in the middle of the fabrication of the recessed viewport
Digital-analog converter	AdLink	PCIe-6216V-GL	
369.5nm laser	Toptica	TA-SHG Pro	
369.5nm laser	Moglabs	ECD004 + 370LD10 + DLC102/HC	
399nm laser	Toptica	DL 100	
935nm laser	Toptica	DL 100	
369.5nm & 399nm optical fiber	Coherent	NUV-320-K1	Patch cables are connectorized by Costal Connections.
935nm optical fiber	GouldFiber Optics	PSK-000626	50/50 fiber beam splitter made of Corning HI-780 single mode fiber to combine 935nm and 638nm together.
Wavelength meter	High Finesse	WSU-2	
temporary mirror	Thorlabs	PF10-03-P01	
Dichroic mirror	Semrock	FF647-SDi01-25x36	
369.5nm & 399nm collimator	Micro Laser Systems	FC5-UV-T/A	
935nm collimator	Schäfter + Kirchhoff	60FC-0-M8-10	
369.5nm focusing lens	CVI	PLCX-25.4-77.3-UV-355-399	Focal length: ~163mm @ 369.5nm
399nm & 935nm focusing lens	CVI	PLCX-25.4-64.4-UV-355-399	Focal length: ~137mm @ 399nm, ~143mm @ 935nm
imaging lens	Photon Gear	P/N 15470	
369.5nm bandpass filter	Semrock	FF01-370/6-25	
399nm bandpass filter	Semrock	FF01-395/11-25	
IR filter	Semrock	FF01-650/SP-25	
EMCCD camera	Andor Technology	DU-897U-CS0-EXF	
PMT	Hamamatsu	H10682-210	