

Materials List for:

Building a Highly Inclined Swept Tile Microscope for Extended Field-of-view Single-molecule Imaging

Jialei Tang¹, Chun-Hung Weng¹, Jeffrey B. Oleske², Kyu Young Han¹

¹CREOL, The College of Optics and Photonics, University of Central Florida

²Andor Technology an Oxford Instruments Company

Correspondence to: Kyu Young Han at kyhan@creol.ucf.edu

URL: <https://www.jove.com/video/59360>

DOI: [doi:10.3791/59360](https://doi.org/10.3791/59360)

Materials

Name	Company	Catalog Number	Comments
1" Achromatic doublet	Thorlabs	AC254-060-A-ML	Collimator
1" Achromatic doublet	Thorlabs	AC254-100-A-ML	L1,L2
1" Achromatic doublet	Thorlabs	AC254-300-A-ML	TL
1" Broadband Dielectric Mirrors	Thorlabs	BB1-E02-10	M1~M7
1" Cylindrical Lenses	Thorlabs	LJ1363RM-A	CL1
1" Cylindrical Lenses	Thorlabs	LJ1695RM-A	CL2
1" square kinematic mount	Edmund Optics	58-857	For dichroic mirror mounting
1" Threaded Cage Plate	Thorlabs	CP02	For holding other lenses
2" Achromatic doublet	Thorlabs	AC508-150-A-ML	L3
2" Achromatic doublet	Thorlabs	AC508-400-A-ML	L4
2" Threaded Cage Plate	Thorlabs	LCP01	For holding L4
2" Threaded Cage Plate	Thorlabs	LCP01T	For holding L3
2% Bis Solution	Bio Rad	64085292	hydrogel component
20 nm fluorescent beads	Thermo Fisher	F8782	For testing imaging
30 mm Cage Right-Angle Kinematic Mirror Mount	Thorlabs	KCB1	For objective & camera mounting
30mm Cage System Iris	Thorlabs	CP20S	
3-Axis NanoMax Stage	Thorlabs	MAX311D	
40% Acrylamide Solution	Bio Rad	64148001	hydrogel component
405 nm laser	Cobolt	Cobolt 06-MLD	
50x TAE buffer	Bio-Rad	161-0743	hydrogel component
561 nm laser	Cobolt	Cobolt 06-DPL	
638 nm laser	Cobolt	Cobolt 06-MLD	
Ammonium persulfate	Sigma	A3678-25G	hydrogel component
Beam alignment tool	custom made		
BNC terminal blocks	Natural Instruments	BNC-2110	
Cage plate with M9 x 0.5 internal threads	Thorlabs	CP1TM09	For holding aspheric lens
Cage System Rods	Thorlabs	SR series	
Cell culture & smFISH			See a reference [11]
Double side tape	Scotch	515182	Flow chamber
Epoxy	Devcon	14250	Flow chamber
Galvo mirror	Thorlabs	GVS211	GM

Galvo System Linear Power Supply	Thorlabs	GPS011	
Half wave plate	Thorlabs	WPH10M-405/561/633	Power adjustment
long-pass dichroic mirror	Chroma	T550lpxr	For combining lasers
Microscope slides	Fisherbrand	12549-3	Flow chamber
Mikroskopische Deckglaser	Hecht Assistent	990/5024	Flow chamber
Mounted Frosted Glass Alignment Disk	Thorlabs	DG10-1500-H1-MD	For double pinhole system
Mounted rochester aspheric lens	Thorlabs	A230TM-A	
Multi-band dichroic mirror	Semrock	DI03-R405/488/561/635-t3	DM; 3 mm thickness
Multi-band filter	Semrock	FF01-446/523/600/677-25	BF
Multimode fiber	Thorlabs	M31L02	MMF
N,N,N',N'-tetramethyl ethylenediamine	Sigma	T7024-25ML	hydrogel component
NI-DAQ board	Natural Instruments	PCI-6733	
Ø1" Kinematic Mirror Mount	Thorlabs	KM100	For holding mirrors
Objective lens	Olympus	PLANAPO N 60X	60X 1.45NA oil
Pedestal Base Clamping Forks	Newport	9916	
Pedestal Pillar Posts	Thorlabs	RS1P8E	
Piezo controller	Thorlabs	BPC303	
Polarized beam splitter	Thorlabs	PBS251	For combining lasers
RMS-SM1 adapter	Thorlabs	SM1A3TS	For objective lens
Rod holder	custom made		
Rotation cage mount	Thorlabs	RSP1/CRM1/CRM1P	For HWP & cylindrical lens mounting
sCMOS camera	Andor	Zyla-4.2P-CL10	
Shearing interferometer	Thorlabs	SI100	Beam collimation test
Single mode fiber	Thorlabs	P5-405BPM-FC-2	SMF
SM1 Lens Tubes	Thorlabs	SM1S25	For double pinhole system
SM1 Slotted Lens Tube	Thorlabs	SM1L30C	For double pinhole system
Stage mount	custom made		
threaded fiber adapter	Thorlabs	SM1FC	
Z-Axis Translation Mount	Thorlabs	SM1Z	Fiber coupling