Leica Stellaris SP8 Laser Scanning Confocal

Objective Properties

Objective	Immersion Media	NA	WD (mm)	Resolution* (µm)	Brightness	Optimal Voxel Size (nm)**	
						x, y	z
HC PL APO CS2 10x DIC	dry	0.40	2.6	0.64	2.6	152	1461
HC PL APO CS2 20x DIC	dry	0.75	0.6	0.34	7.9	81	360
HC PL APO CS2 20x DIC	water, glycerol, oil	0.75	0.7	0.34	7.9	81	530/594/614
HC PL APO CS2 40x DIC	glycerol	1.25	0.4	0.20	15.3	48	176
HC PL APO CS2 63x DIC	oil	1.40	0.1	0.18	9.7	43	130

NA (numerical aperture): affects nearly everything about your image; report this along with the magnification when you publish
WD (working distance): how deep you can image; e.g. to image all the way through a 0.2 mm object, you need a WD > 0.2
Resolution*: sizes smaller than this cannot be measured; objects closer than this distance cannot be distinguished
* Resolution calculated for fluorescence with 500 nm emission
There are several theories for calculating confocal resolution. This is a conservative estimate.
It does not account for any improvement due to Lightning mode.

Brightness: relative measure of how much light is collected by the objective

Optimal Pixel Size**: The largest pixel dimensions you can use and still obtain maximal resolution in your images.
** Calculated based on the Nyquist sampling rate for confocal with 488 nm excitation and 520 nm emission.
x/y numbers correspond to pixel size.
Z numbers correspond to z-step size. The three numbers for the 20x are for different immersion media.
If you do not need to resolve details near the resolution limit, you can use larger sizes.
You can also usually get away with using sizes that are ~1.5x larger.
Using Lightning mode to increase resolution also requires smaller pixel sizes.