Table I. **Super-resolution light microscopy methods**

	Near-field		Far-field					
Principle	Small aperture scanning (no lens)	Evanescent wave illumination	Wide-field + deconvolution	Confocal laser scanning	Moiré effect with structured illumination		PSF shaping with saturated emission depletion	Photoswitching and localization of single molecules (pointillism)
Acronym	**SNOM/NSOM**	**TIRFM**		**CLSM**	**SIM** (HELM, PEM) **3D-SIM**	**SSIM** (SPEM)	**STED/CW-STED**	**PALM/FPALM/STORM/ dSTORM/PALMIRA**
Illumination-emission dependence	Linear	Linear	Linear	Linear	Linear	Non-linear	Non-linear	Linear
Detector	Scanning PMT/APD	Wide-field CCD/ CMOS	Wide-field CCD/ CMOS	Scanning PMT/ APD	Wide-field CCD/ CMOS	Wide-field CCD/ CMOS	Scanning PMT/APD	Wide-field CCD/CMOS
XY-resolution	20–120 nm	200–300 nm	180–250 nm	180–250 nm	100–130 nm	50 nm	20–100 nm	20–50 nm
Z-resolution	10 nm (near-field range)	100 nm (near-field range)	500–700 nm	500–700 nm	250–350 nm	N.D.	560 nm (CW-STED) to 700 nm (100 nm with z-phase mask)	100 nm (TIRF) 20–30 nm (3D-STORM, TIRF) 75 nm (BP-FPALM, in plane)
Serial z-sectioning	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Z stack range	N.A.	N.A.	100 μm	100 μm	10–20 μm	N.A.	>20 μm	100 nm – few μm (BP-FPALM)
Dyes	Any	Any	Any	Any	Most conventional dyes (photostable)	Dyes require special characteristics	Dyes require special characteristics (CW-STED works with many conventional dyes)	Dyes require special characteristics
Simultaneous colors	2	3	>3	>3	3	1	2	2
Temporal resolution for 512 x 512 image	s-min	ms	ms	ms-s	ms-s	s-min	ms-min	s-min
Energy load/ intensity	Low	Low	Low	Medium	Medium	High	Medium-high	Medium-high
Live-cell imaging	Yes	Yes	Yes	Yes	Restricted (2D-TIRF)	No	Restricted	Restricted
Postprocessing required	No	No	Yes	No	Yes 9–25 raw images per slice	Yes ~100 raw images per slice	No	Yes >1,000 raw images per slice
Notes	No intracellular imaging	Restricted to region near the coverslip	Risk of artifacts; better for sparse samples		Reconstruction bears risk of artefacts	High excitation required; reconstruction bears risk of artefacts	Complex instrumentation; photobleaching	May require TIRF setup for best performance; labeling density is critical; performs better on particles and filaments as on volume stains
Dual lens implementation			**I^5M**	**4Pi**	**I^5S**		**4 Pi-STED/iso-STED**	**iPALM**
Z-resolution			70 nm	80 nm	100 nm		20–100 nm	10 nm (depth ~200 nm)

N.A., not applicable; N.D., not described.