



Silver Nanoparticle Chains for Ultra-Long-Range Plasmonic Waveguides for Nd³⁺ Fluorescence

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Experimental setup: dual confocal microscopy

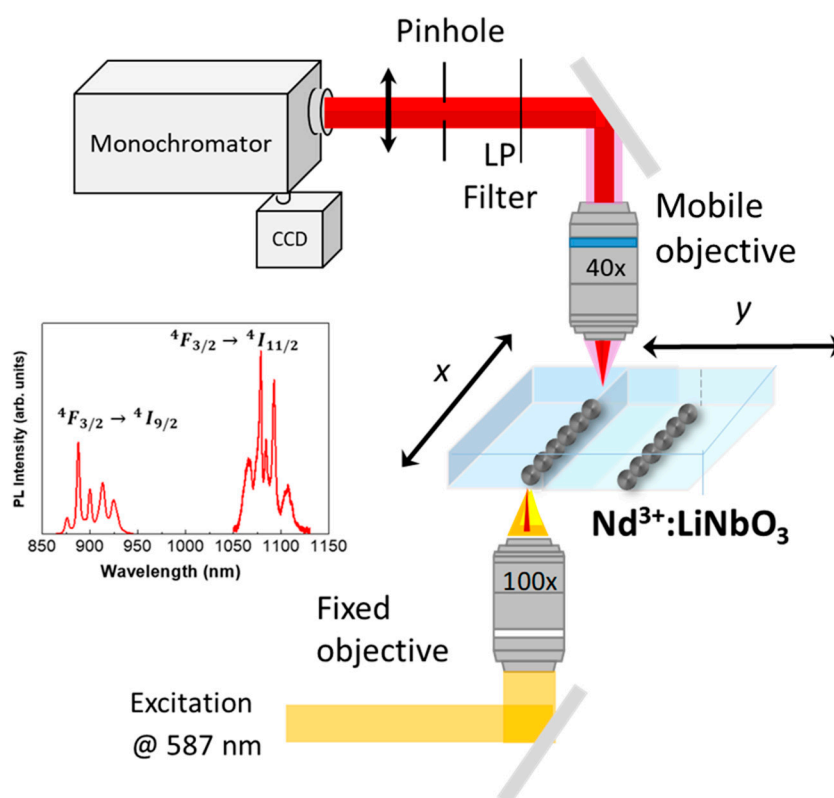


Figure S1. Schematics of the double confocal microscope employed in this study. The sample is excited by a 587 nm cw optically-pumped semiconductor laser (OPSL), focused with a fixed 100x (NA=0.9) microscope objective. The Nd³⁺ photoluminescence (PL) is collected in transmission configuration with a mobile 40x objective (NA=0.6), attached to a XYZ piezoelectric stage. The PL is driven through a lowpass filter, with the aim of suppressing the remaining laser, and a 1 mm diameter pinhole to increase the spatial resolution. Detection is carried out by a Peltier-cooled CCD connected to a monochromator. The excitation polarization is set parallel to the axis of the chains by a $\lambda/2$ plate, and a specific polarization of the Nd³⁺ PL can be collected inserting a linear polarizer within its optical path. The inset shows the emission spectrum of Nd³⁺ in LiNbO₃ for the $^4F_{3/2} \rightarrow ^4I_{9/2}$ and $^4F_{3/2} \rightarrow ^4I_{11/2}$ optical transitions.