Switchable Chiroptical Hot-Spots in Silicon Nanodisk Dimers

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Supporting Information

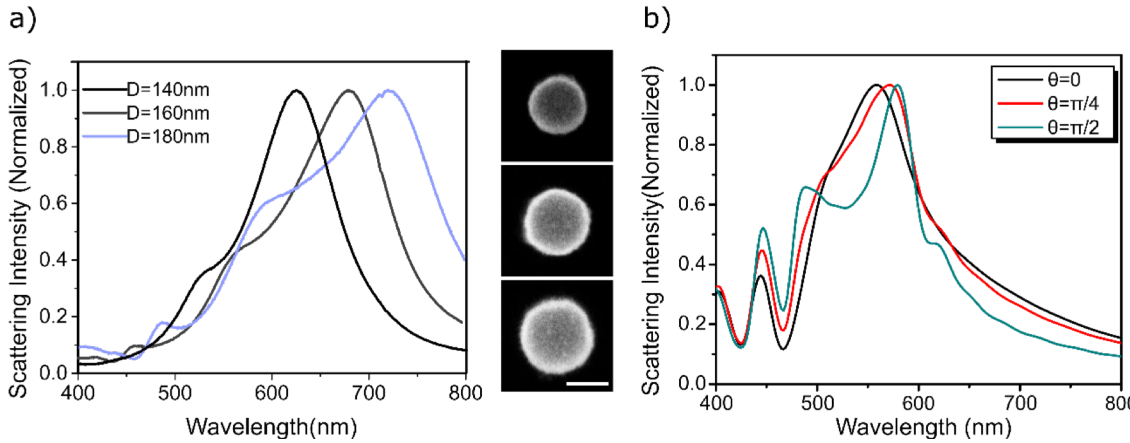

Figure S1. a) Experimental darkfield scattering spectra for Si nanodisk monomers (h = 150 nm) with different diameters D fabricated on sapphire substrate. b) Simulated scattering spectra for free-standing (no substrate) silicon nanodisk dimer (D = 140 nm, h = 100 nm, g = 20 nm) for different light polarization angles.

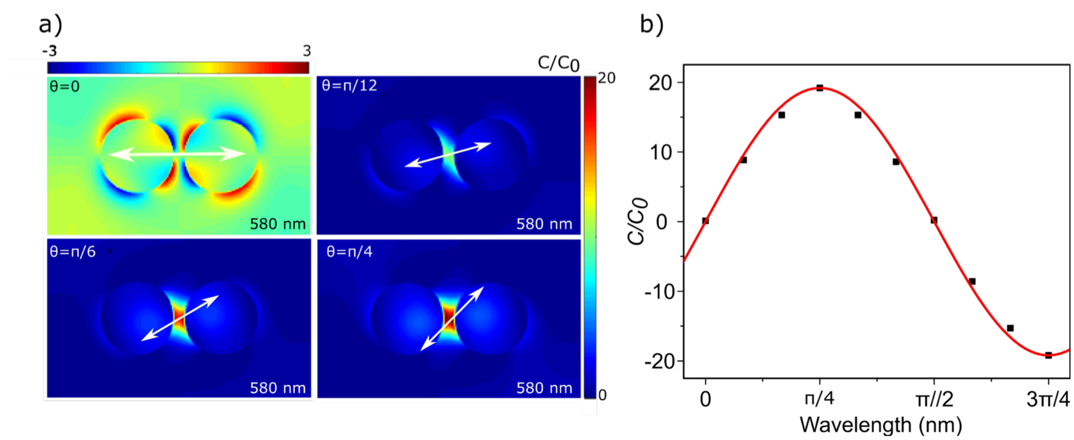

Figure S2. a) Effect of polarization angle on optical chirality enhancement. Simulated optical chirality enhancement C/C_0 for Si nanodisk dimer (h = 100nm, g = 20 nm, D = 140 nm) with different polarization angles (clockwise top left to bottom left) $\theta = 0, \pi/12, \pi/4, \pi/6$. b) Plot of the calculated C/C_0 (integrated over the gap area) as function of polarization angle θ.

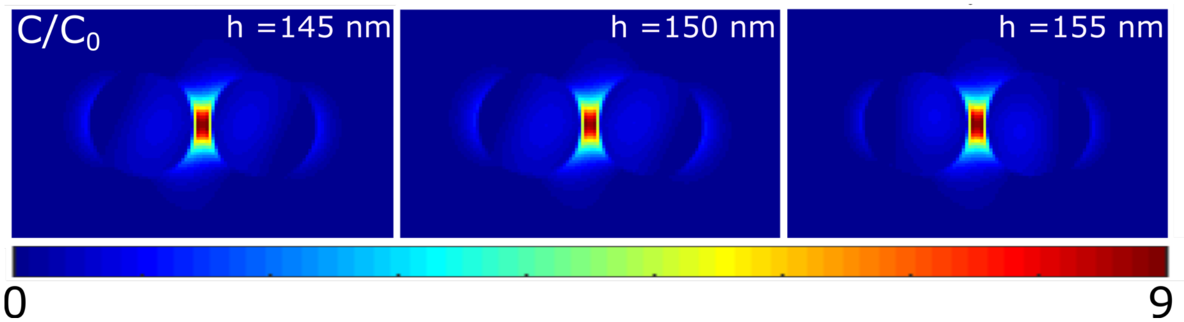

Figure S3. Height effect on optical chirality. Simulated optical chirality enhancement for D = 140 nm, g = 20 nm Si nanodisk dimers on sapphire substrate with different heights.

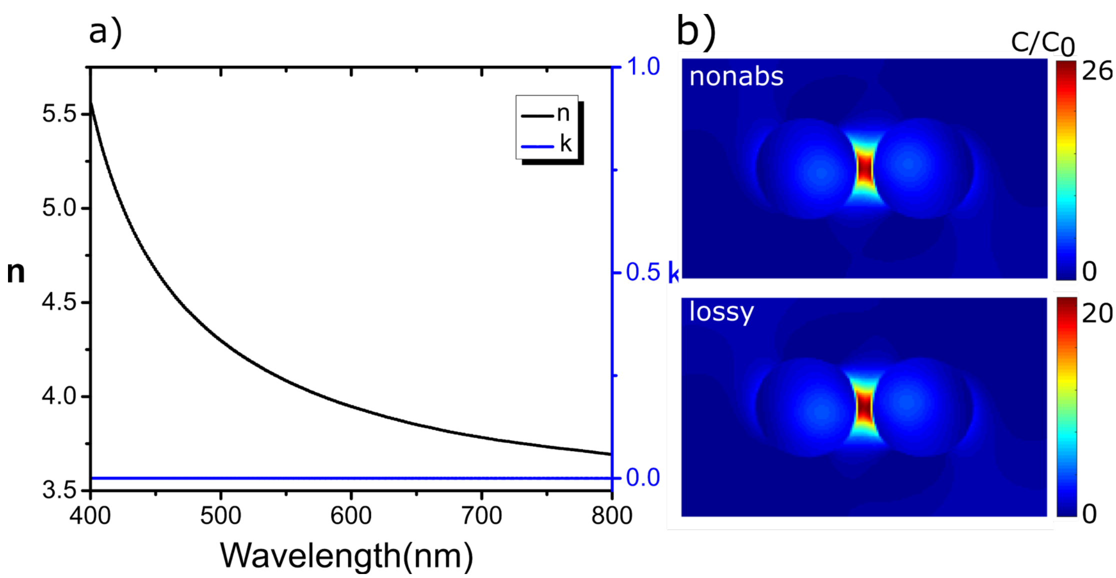

Figure S4. Simulated optical chirality enhancement by hypothetical non-absorbing Si. a) Wavelength-dependent refractive index. b) Optical chirality maps for non-absorbing dimers (h = 100nm, g = 20 nm, D = 140 nm) when in vacuum (upper) and a comparison of this C/C_0 map with that for the "lossy" Si nanodisk dimer (bottom) shows a nearly identical spatial distribution of C enhancement with higher peak enhancement (C/C_0 = 26 compared to C/C_0 = 20).