Electronic Supplementary Material (ESI) for Nanoscale Horizons.

Supporting Information for

Dynamic radiative tailoring based on mid-refractive dielectric nanoantennas

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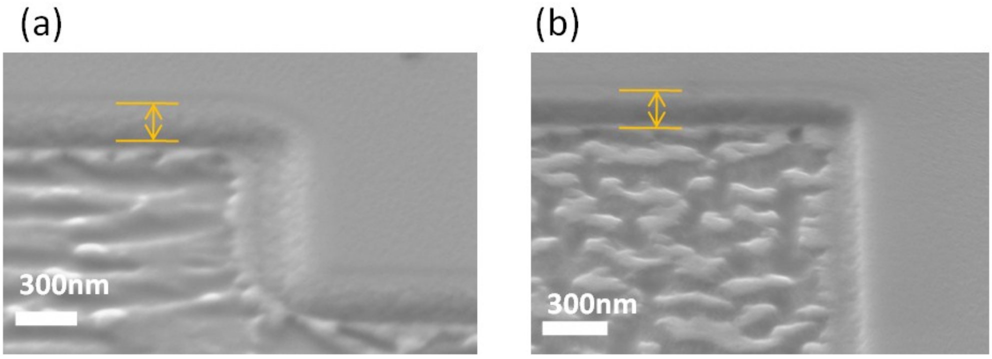

Figure S1. Cross sectional SEM images showing the thickness of VO_2 film is around 198 nm.

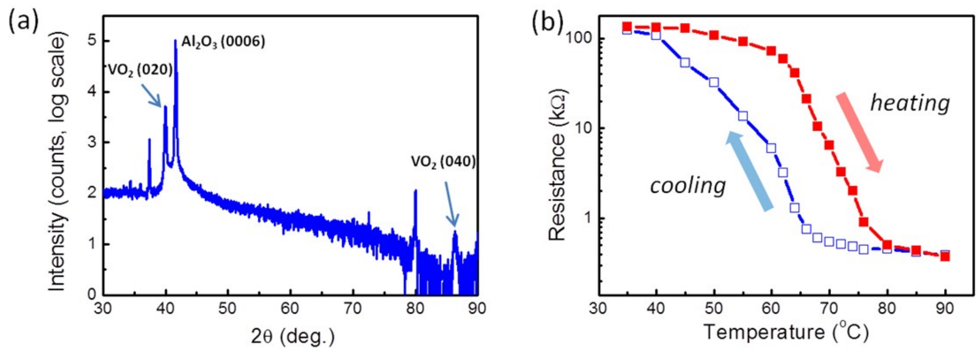

Figure S2. (a) XRD patterns of the deposited crystalline VO_2 film on sapphire substrate. Characteristic peaks and crystallographic planes are marked. (b) Electrical resistance as a function of temperature of VO_2 thin films during heating and cooling processes.

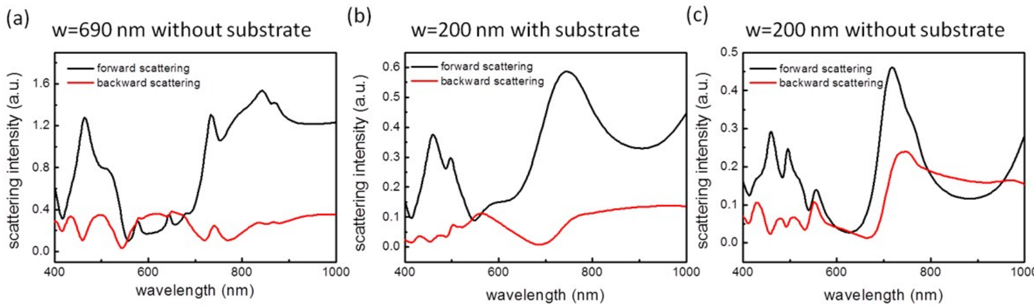

Figure S3. (a) Simulated forward (black) and backward (red) scattering of a Si nanostripe in air with the width of 690 nm. (b) Simulated forward (black) and backward (red) scattering of a Si nanostripe on the Al_2O_3 substrate with the width of 200 nm. (c) Simulated forward (black) and backward (red) scattering of a Si nanostripe in air with the width of 200 nm.

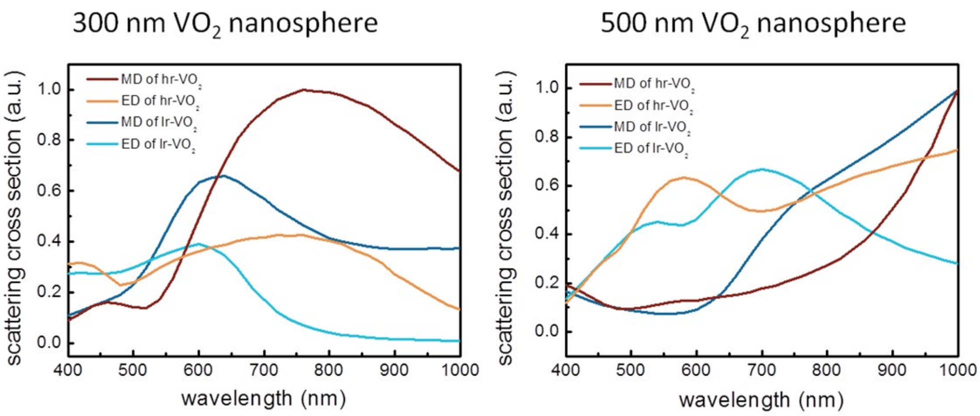

Figure S4. Scattering cross section of VO_2 nanospheres with the diameters of 300 nm and 500 nm contributed by magnetic (MD) and electric dipole (ED) modes. The VO_2 nanospheres have two states: lr-VO_2 and hr-VO_2.

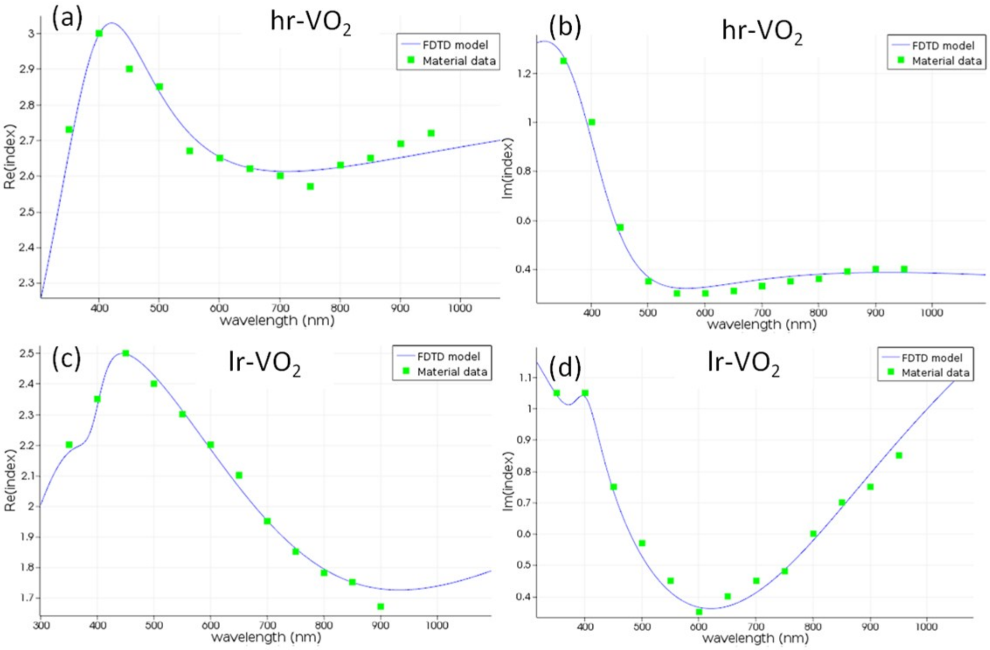

Figure S5. Refractive index (a) and extinction coefficient (b) of hr-VO_2. Refractive index (c) and extinction coefficient (d) of lr-VO_2.

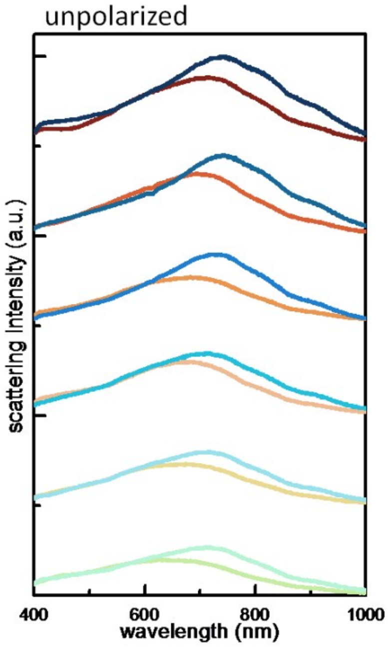

Figure S6. From top to bottom, measured scattering spectra of nanostripes under unpolarized incidence when reducing widths from 836 nm, 756 nm, 707 nm, 690 nm, 480 nm to 415 nm. Cool colors represent the spectra collected at 25^{o}C, and warm colors represent the spectra collected at 90^{o}C.

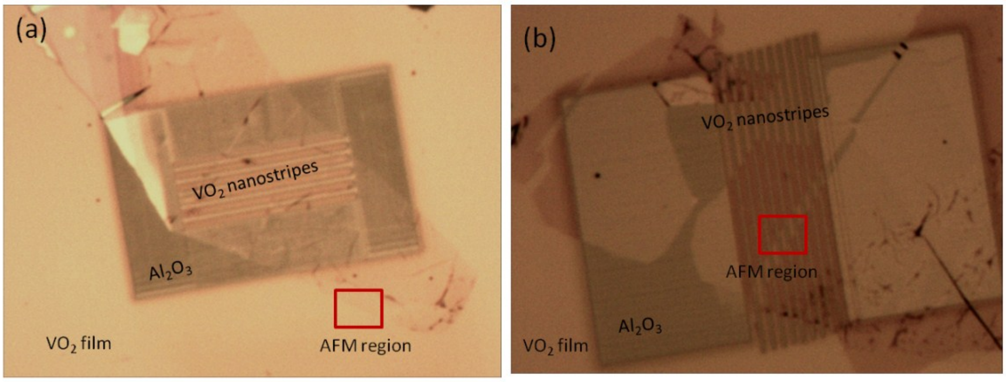

Figure S7. Bright field optical images of thin (a) and thicker (b) WS_2 flakes on top of VO_2 nanostripes. Red boxes indicate where the AFM topographies were measured.

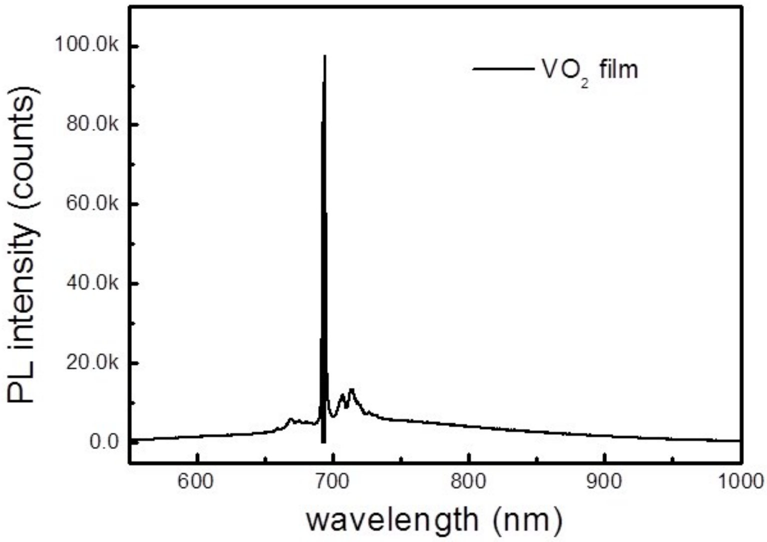

Figure S8. PL spectra collected from pure VO_2 film.

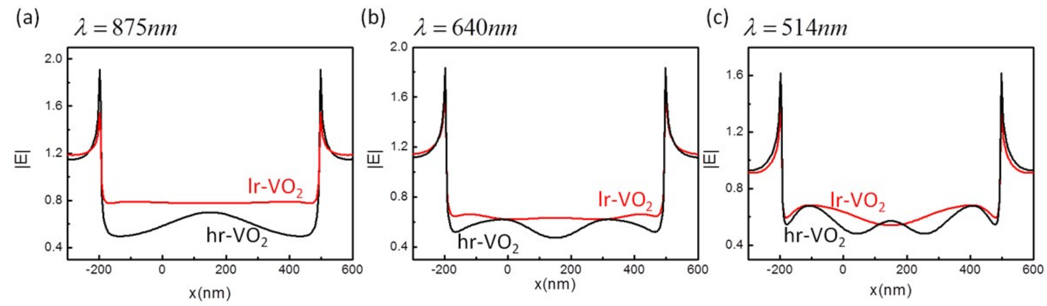

Figure S9. Line-scanned field enhancements at the top-surface of VO_2 nanostripes at $\lambda = 875nm$ (a), $\lambda = 640nm$ (b) and $\lambda = 514nm$ (c).