

Supplementary Information

To clarify the influence of the geometry on the far-field scattering patterns for the coefficient k in the core, a systematic investigation was performed by varying three parameters d , l , a . As shown in Figure S1a and b, the curve exhibits pronounced directionality towards the opposite direction at the metal and dielectric edge lengths of $d=50$ nm and $l=40$ nm. The metal and dielectric edge lengths were fixed while the face-to-face distance a was varied. Figure S1c shows that the directionality $G_{FS/BS_{max}}$ increased as the face-to-face distance of the nanoantenna was increased from 5 nm to 20 nm. The directionality $G_{FS/BS_{max}}$ reached the maximum and a high directivity of scattering could be achieved when d , l , a were 50 nm, 40 nm, and 20 nm, respectively.

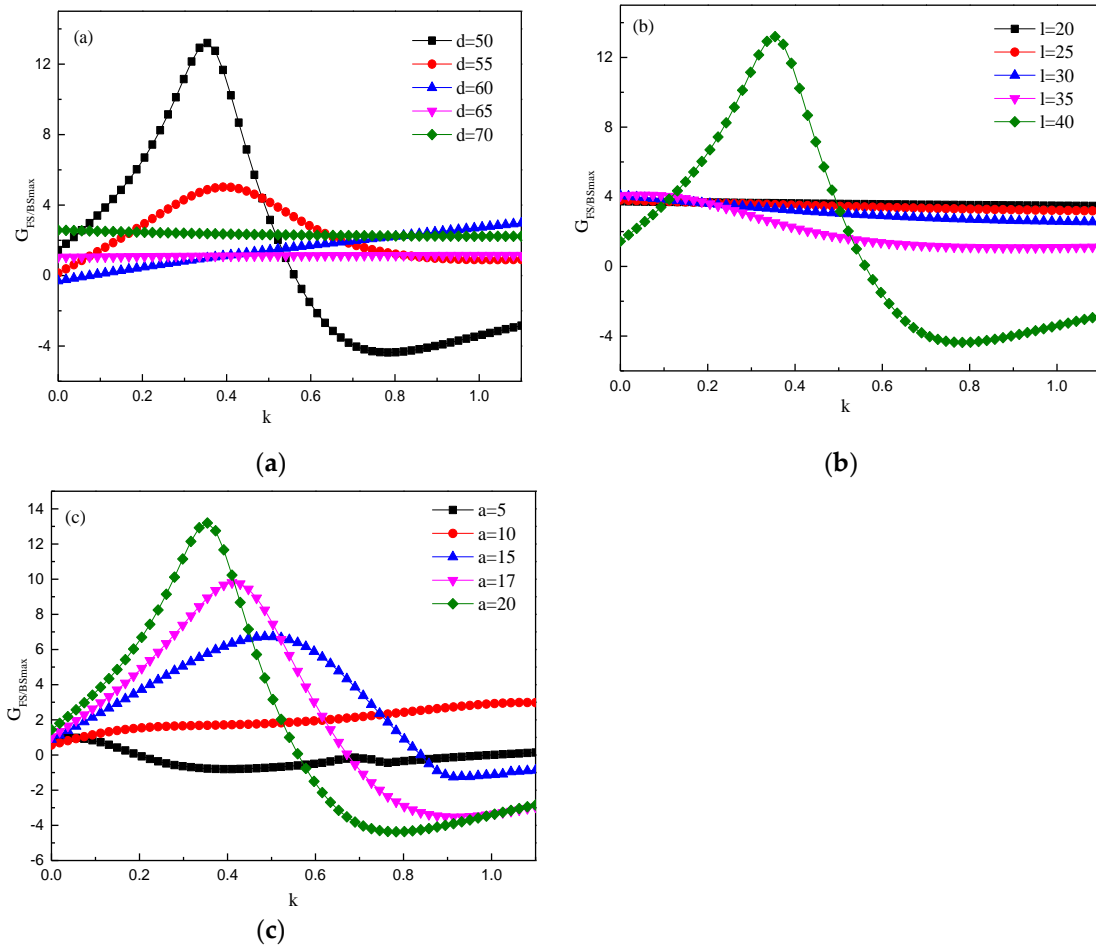


Figure S1. Far-field forward-to-backward directionality $G_{FS/BS_{max}}$ with different (a) metal edge lengths d , (b) dielectric edge lengths l , and (c) face-to-face distance a .