

Abstract Submitted
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Strong superchiral field in hot spots and its interaction with chiral molecules.¹ YINENG LIU, Xiamen University — We have found that strong superchiral fields created by surface plasmon resonance exist in hot spots of nonchiral plasmonic structure, which showed a chiral density greater than that of circularly polarized light by hundreds of times. We have demonstrated a direct correlation between the chirality of the local field and the circular dichroism (CD) response at the plasmon resonance bands induced by chiral molecules in the hot spots. Our results reveal that the wavelength-dependent superchiral fields in the hot spots can play a crucial role in the determination of the plasmonic CD effect. This finding is in contrast to the currently accepted physical model in which the electromagnetic field intensity in hot spots is a key factor to determine the peak intensity of the plasmonic CD spectrum. Some related experimental phenomena have been explained by using our theoretical analysis.

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