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Optical Properties of Helical Ag Nanostructures calculated by Discrete Dipole Approximation Method<sup>1</sup> ZHONGYUE ZHANG, YIPING ZHAO, University of Georgia — As a commonplace structure in nature, helical structure remains a mystery to scientific researchers, which interacts differently with left and right circularly polarized light, and gives the well-known phenomena of circular birefringence and circular dichroism. Most helical structures studied so far are dielectric or molecular structures. In this presentation, the extinction spectra and field distribution of Ag helical nanostructures calculated using the discrete dipole approximation method have been investigated. The plasmon peak of the Ag helix can be tuned not only by the structural parameters but also by the polarizations of the incident light, especially the circular polarizations. In addition, the polarization direction of the incident light can change the spatial distribution of the maximum E field, which provides a simple way to spatially resolve analyte's distribution on the nanostructures for sensing applications.

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