VIBRON AND PHONON HYBRIDIZATION IN DIELECTRIC NANOSTRUCTURES

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In this talk we present a hybridization scheme for the external and internal vibrations of dielectric nanostructures. This method provides an intuitive understanding of the infrared spectra of nanoparticles through analogy to molecular orbital theory. Using the example of cubic nanoshells composed of carbon dioxide, it is demonstrated how the spectra of complex nanostructures can be understood in terms of their primitive components.[a]

[a] T. C. Preston and R. Signorell, Proc. Natl. Acad. Sci. U.S.A. (in press).