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Plasmonic resonances and hot spots in Ag octopods and octahedra assemblies I. NAUMOV, A. BRATKOVSKY, Z. LI, Hewlett-Packard Laboratories, M. MULHIVILL, J. HENZIE, P. YANG, UC Berkeley — We study novel Ag plasmonic nanoparticles synthesized in the star shapes (octopods) as well as octahedra and their ensembles. The discrete dipole approximation shows a number of major resonances that can be tuned up to a large extent making them especially attractive to use in e.g. high-performance surface enhanced Raman (SERS) detectors. The excited resonant modes strongly depend on the geometrical parameters of the particles and their mutual arrangement. The field "hot spots" are mostly localized at the surface between the arms (in the stars) and between the octahedra (in the assemblies) and may be both "electric" and "magnetic" in character. The nanoparticles assemblies enable hot spot "engineering."

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