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Electromagnetic Interaction in Plasmonic Artificial Molecules SARAH GREFE, YOHANNES ABATE, California State University Long Beach, NANOOPTICS GROUP TEAM — Plasmonic hotspots located in the nanogaps of infrared optical antennas are mapped in the near-field. The enhanced evanescent fields are imaged as a function of excitation wavelength, polarization, particle length, gap size, and tip material. The near-field resonance behavior of antennas composed of rods, "bowtie" and "fourtie" infrared antenna structures reveals that field enhancement strongly depends on the particle length and interparticle gaps. In rod antenna-field imaging using scattering probes, the probe tip can be considered as a load in the gap of the antenna, and the antenna response to tips can be directly understood by using nanocircuit theory. Experimental results are in agreement with finite-difference time-domain (FDTD) simulations.

> Sarah Grefe California State University Long Beach

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