

Abstract Submitted  
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**Nantennae: Far-field coherent interactions between pairs of oriented polymer nanostructures** MICHAEL BARNES, University of Massachusetts — We demonstrate for the first time realization of a prototypical *nanoscale phased-antennae array* using pairs of z-oriented polymer nanostructures. Far-field photonic coupling between pairs of oriented luminescent polymer nanostructures is manifested by a modulation in the fluorescence decay rate as a function of interparticle distance, closely resembling the interaction between two classical (macroscopic) coupled antennae. However, unlike classical emitters, previously measured photon-pair correlation statistics indicate that the interaction between oriented nanostructures is mediated by single-photon states. Our experiments, performed under ambient conditions, demonstrate the feasibility of a fully scalable polymer-based nanophotonic system.

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