IRG-D researchers at Princeton University have combined superconducting qubit technology with single spin devices, demonstrating that the microwave field of a superconducting resonator is sensitive to the spin of a single electron. The device may allow two spatially separated electron spins to be coupled, resulting in quantum entanglement.


Fig. 1 A Optical image of the device used to couple a single spin qubit to a photonic cavity. B A nanowire is electrically connected to the resonator. C Two electrons are trapped in the nanowire and they respond to the electric field in a spin-dependent manner.

Partial support from ARO, DARPA, and the Packard Foundation