



Circular Optical Nanoantennas

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An entirely analytical theory is provided for describing the resonance properties of optical nanoantennas made of a stack of homogeneous discs, i.e. circular patch nanoantennas. It consists in analytically calculating the phase accumulation of surface plasmon polaritons across the resonator and an additional contribution from the complex reflection coefficient at the antenna termination. This makes the theory self-contained with no need for fitting parameters. The very antenna resonances are then explained by a simple Fabry-Perot resonator model. Predictions are compared to rigorous simulations and show excellent agreement. Using this analytical model, circular antennas can be tuned by varying the composition of the stack.

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