

The purpose of this paper is to introduce the idea of how an antenna can be coupled with a mode-locked quantum-dot (QD) laser chip to radiate in the microwave region. A brief theory of operation for the reconfigurable mode-locked quantum-dot laser is first explained and the design of the waveguide and antenna part is next presented. Due to its wide frequency bandwidth, a bowtie antenna is coupled to a QD laser. The goal is to achieve a THz radiator design by coupling the pulsing laser to a reconfigurable fractal antenna capable of radiating at THz frequency. We present a preliminary design that includes antenna simulations and their comparison with measured data. The challenges associated with integrating the antenna with the quantum-dot laser are also presented and discussed.