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【178】 Epi-down Bonded Quantum Cascade Patch Antenna Array Laser

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Terahertz quantum cascade patch antenna lasers are a promising technology to realize surface emission in the terahertz range. The laser emission frequency can be tuned by changing the patch size and array geometry. Biasing these sub-wavelength structures requires metallic connection lines with limited effect on the patch mode.

We present epilayer-down mounted patch arrays on a substrate with low optical losses in the terahertz range. Our biasing lines run only along the substrate surface. Electromagnetic simulations show that substrate mounting of patch antennas broadens the absorption and leads to multimode operation.

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