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**Effects of high magnetic fields on the scattering rates of GaAs/AlGaAs and GaInAs/AlInAs quantum cascade lasers** A. WADE, G. FEDOROV, D. SMIRNOV, National High Magnetic Field Laboratory, A. LEULIET, A. VASANELLI, C. SIRTORI, Laboratoire Matériaux et Phénomènes Quantiques, Université, France — Using magneto-spectroscopy, we investigate the influence of a strong magnetic field on the intersubband scattering rates in MIR GaAs/AlGaAs and GaInAs/AlInAs quantum cascade lasers (QCLs). In our experiments, we measured light-current, voltage-current and laser emission spectra as a function of magnetic field up to 40T with the magnetic field perpendicular to the 2DEG. We observed strong oscillations in the intensity and threshold current. From these, the magnetic field dependences of the intersubband lifetime of both structures were derived and compared to their calculated dependence of electron-LO phonon scattering rates.

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