

# Compact Sub-100-fs Low-Energy Solid-State Laser with Gigahertz Repetition Rate

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This work presents a compact sub-100-fs, low-energy Kerr-lens modelocked Ti:Sapphire bulk laser oscillator operating at a 1-GHz repetition rate. The laser features a bow-tie cavity using dispersion-compensating mirrors and operates in a modelocked regime, achieving an average power of 0.94 W at 7.4 W of pump power. It produces a broadband emission of 31 nm centered at 756 nm, with low-energy pulses of 1 nJ, a temporal width of 61 fs, and a peak power of 15 kW. The compact laser setup shows great potential for various applications in spectroscopy and metrology.

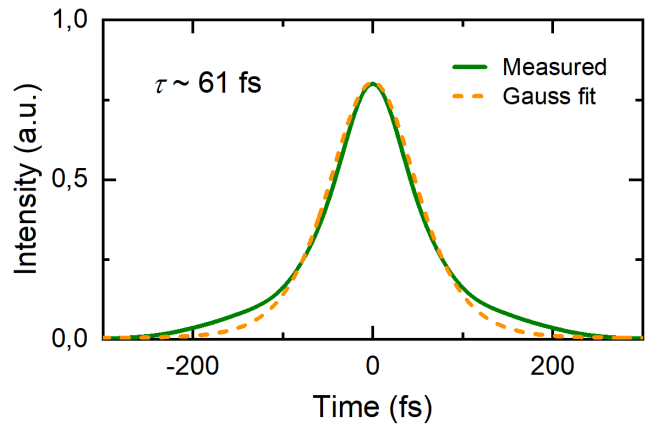


Figure 1: Autocorrelation trace of the pulse