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Generation of 0.3-TW Few-cycle Driver Pulses via Efficient Cascaded Raman Frequency Down Conversion

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We demonstrate a highly efficient, single-stage, SRS-enabled cascaded frequency down-conversion to generate high-energy, few-cycle, IR pulses. 10 mJ, 220 fs pulses at 1030 nm are red-shifted to 1230 nm in a 5.5 m-long, nitrogen-filled waveguide with 82.5% efficiency, and subsequently compressed down to 19 fs.

Authors: FAN, Guangyu (TU Wien); CARPEGGIANI, Paolo (TU Wien); TAO, Zhensheng (Fudan University); COCCIA, Giulio (Politecnico di Milano); KAKSIS, Edgar (TU Wien); MARANGONI, Marco (Politecnico di Milano); CARDIN, Vincent (Institut National de la Recherche Scientifique); LEGARÉ, Francois (Institut National de la Recherche Scientifique); SCHMIDT, Bruno (Few-Cycle Inc.); BALTUSKA, Andrius (TU Wien, Center for Physical Sciences & Technology)

Presenter: FAN, Guangyu (TU Wien)

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