



18th June 2020, 10:00h

At Zoom virtual meeting: <https://desy.zoom.us/j/95193553165>

Meeting ID: 951 9355 3165 Password: 789456

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We report on the realization of a waveform synthesizer based on coherent combination of different optical parametric amplifiers. The output waveforms, that cover the NIR/IR range between 650 nm and 2200 nm, can be tailored by controlling the carrier-envelope phase (CEP) and relative phase (RP) among the output pulses of the different parametric amplifiers. Such precise control over the waveform allows to directly generate isolated attosecond pulses (IAPs) via high-harmonic generation (HHG), without a need for additional gating techniques. More importantly, the photon energy and the spectral bandwidth of the isolated attosecond pulses (IAPs) can be tuned by controlling CEP and RP almost continuously between ~ 30 and ~ 120 eV, when argon is used as HHG medium. The IAP central photon energy will be soon extended to cover the water-window region (~ 300 - 600 eV) by means of higher ionization potential gases. The possibility to combine tailored sub-cycle IR waveforms with energy-tunable attosecond pulses opens up interesting prospects for attosecond science.