

< 192 ... 215 nm  
> 6.46 ... 5.77 eV  
narrow bandwidth

# High Power Tunable ps UV Source

The generation of high power tunable UV radiation is based on a widely tunable picosecond OPO with computer controlled tuning, pumped by an industrial high power green laser and with subsequent frequency conversion to reach UV wavelengths even < 200 nm (> 6.20 eV).

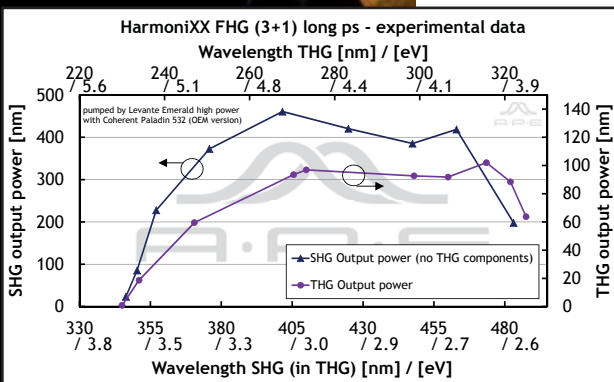
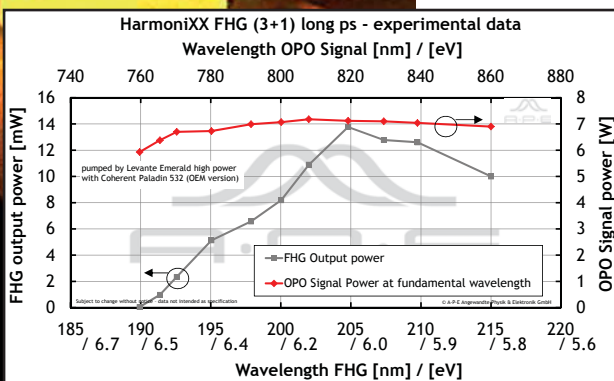
To reach this UV wavelength range the Signal of the Levante Emerald<sup>NSP</sup> HP pumps the harmonics generator HarmoniXX FHG (3+1).

The HarmoniXX FHG (3+1) allows access to the wavelength range < 192 ... 215 nm (6.46 ... 5.77 eV) by mixing the THG with the fundamental wavelength to create the fourth harmonic. Due to the narrow bandwidth pump pulses, also the harmonic pulses are narrow bandwidth, enabling a high resolution across the tuning range.

This light source enables spectroscopy and pump probe measurements in the UV range < 200 nm.

For example:

- Photo electron spectroscopy, e.g. in metals
- Direct one photon excitation of UV transitions



- Access to short wavelength and narrow bandwidth light at < 200 nm (> 6.20 eV) with high brightness
- Other harmonics (SHG, THG, FHG (2+2)) also included
- Integrated spectrometer for the Signal range
- Automatic tuning via software
- Jitter-free generation of different wavelengths
- Two tunable output beams with different colors (Signal and Idler)
- Signal and Idler beam overlapped in space and time | Beam separator included

Pump laser parameters

532 nm | > 20 W | ca. 15 ps

	Signal	Idler
Tuning range	690 (typ. 680) ... 990 nm	1150 ... 2300 (typ. 2450) nm
Output power	> 6 W @ (760 ... 960 nm)	> 3.5 W @ (1150 ... 1350 nm)

Pulse width	approx. 14 ... 16 ps
Spectral bandwidth (Signal)	< 0.1 nm
Spectral bandwidth FHG	typ. 5 pm @ 196 nm (0.16 meV @ 6.46 eV)
Time bandwidth product	typ. 0.6
Repetition rate	approx. 80 MHz (depending on and equal to the repetition rate of the pump laser)
Beam quality $M^2$	< 1.2 (typ. 1.1)
Polarization	linear / horizontal
Computer interface	Standardized Software Interface (using TCP/IP)

The Levante Emerald<sup>NSP</sup> HP is delivered with an integrated spectrometer and a removeable Signal / Idler beam separator.

#### HarmoniXX FHG (3+1)

Tuning range FHG	< 192 ... 215 nm (> 6.46 ... 5.77 eV)
Output power FHG	> 11 mW @ 207 nm (5.98 eV)
Spectral bandwidth	typ. 5 pm @ 196 nm (0.16 meV @ 6.46 eV)
Tuning range THG	< 240 ... > 320 nm (> 5.12 ... < 3.87 eV)
Output power THG	> 75 mW @ 280 nm (4.43 eV)
Tuning range SHG	< 360 nm ... > 480 nm (> 3.44 ... > 2.58 eV)
Output power SHG	> 410 mW @ 800 nm (1.55 eV) (THG components removed)



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