

# Ultrafast Lasers & Systems for Science, Research & Development, and Industry



By tunable parameters include pulse duration, repetition rate, average power, pulse energy, and the convenient control of the laser output in pulse-on-demand mode, PHAROS & CARBIDE are suitable for high speed spectroscopy and high grade micro-processing & ultra-precise material processing include glasses, brittle & highly thermal sensitive materials.

## PHAROS



### High Power & High Energy Femtosecond Lasers

- 20 W maximum output power
- 2 mJ maximum pulse energy
- 190 fs – 20 ps tunable pulse duration
- Single shot – 1 MHz repetition rate
- Automated harmonic generator mounted directly on the laser head
- 515 nm, 343 nm, 257 nm, or 206 nm output
- Industrial grade I-OPA option ( 320 nm – 10000 nm )
- GHz/MHz-BiBurst option

## CARBIDE



### Industrial-grade High Power One box Femtosecond Lasers

- 80 W maximum output power ( 6 W air-cooled model )
- 800  $\mu$ J maximum pulse energy ( 100  $\mu$ J air-cooled model )
- 190 fs – 10 ps tunable pulse duration ( 190 fs – 20 ps air-cooled model )
- Single shot – 2 MHz repetition rate
- Automated harmonic generator mounted directly on the laser head
- 515 nm, 343 nm, or 257 nm output
- Industrial grade I-OPA option ( up to 40 W, up to 2 MHz )
- GHz/MHz-BiBurst option

## FLINT



### Femtosecond Yb Oscillators

- Up to 20 W at 76 MHz output power
- Up to 260 nJ pulse energy
- Short to 30 fs pulse duration
- High pulse-to-pulse energy stability : <0.5% RMS
- Optional automated second harmonic generator
- Optional CEP stabilization
- Optical repetition rate locking to an external source

## ORPHEUS



### Femtosecond Tunable wavelength OPA

- Tunable wavelength range : 190 – 16000 nm ( ORPHEUS )
- 2 mJ input maximum pulse energy ( -HE )
- 80 W input maximum average power ( -HP, -HE )
- Tunable 2 wavelength independently ( TWINS )
- Mid-IR Collinear OPA ( -ONE ) ( 1350 – 16000 nm )
- Tunable pulse duration ( -F ) ( 25 – 100 fs, 325 – 16000 nm )
- Mid-IR broad bandwidth OPA ( -MIR ) ( 100 fs, 1350 – 15000 nm )
- Non-collinear OPA ( -N ) ( <30 fs, 260 – 900 nm )
- Narrow bandwidth picosecond OPA ( -PS ) ( 1 – 3 ps, <20  $\text{cm}^{-1}$  )

## OPCPA | HE OPCPA | HR

### Optical Parametric Chaped pulse Amplification System

By adopting PHAROS / CARBIDE as the front-end, OPCPA can generate CEP-stable ultrafast few-cycle pulse.

#### High Energy System

- 100 mJ maximum pulse energy
- Down to 6.5 fs pulse duration
- 100 W maximum output power
- 100 Hz - 200 kHz repetition rate
- Up to 5 TW peak power



## HARPIA

### Comprehensive Spectroscopy System

Configurations of original optics, software, data analysis software, HARPIA suitable for Ultrafast Transient Spectrometer, Time-resolved spectroscopy, Fluorescence.

- probe wavelength : 330 – 1400 nm
- Multi-channel detector : 200– 2600 nm
- Single-channel detector : 180 nm – 24  $\mu$ m
- 1 Delay range : 2.1 fs, 4.2 fs, or 8.3 fs
- 1 – 1000 kHz repetition rate



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