

SOLSTIS PLATFORM

ADVANCING QUANTUM TECHNOLOGY

The award-winning SolsTiS represents a step-change in continuous-wave Ti:Sapphire laser technology. SolsTiS delivers low noise, unrivalled power, ultra narrow linewidths and unprecedented tuning. SolsTiS is a super-compact system with a completely sealed, alignment-free cavity and hands-free operation.



A UNIQUE MODULAR PLATFORM
TO PUSH THE BOUNDARIES OF
QUANTUM TECHNOLOGY

Unparalleled performance
210 nm - 4.5 μm

FEATURES

BROAD TUNING RANGE Hands-free operation from 670 - 1050 nm with >300 nm of continuous tuning with a single optics set.

ULTRA NARROW LINEWIDTHS Exceptional passive stability enables <50 kHz absolute linewidth. Using active feedback, <10 Hz has been achieved.

HIGH POWER SolsTiS is the most efficient Ti:S laser in the world. Output power levels >6 W in the fundamental and >2.5 W in SHG.

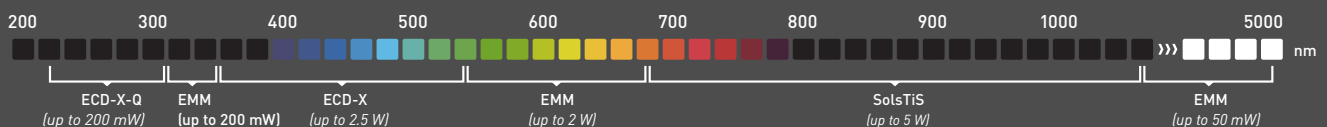
WAVELENGTH EXTENSIONS Extend SolsTiS to provide gapless coverage from 210 nm - 4.5 μm with SolsTiS-ECD-X doubling cavity and SolsTiS-EMM mixing module.

WIDE CONTINUOUS SCANS Continuous high resolution scans over >25 GHz. Unique functionality enables mode hop free scans over >100 nm.

FULLY AUTOMATED Wavelength tuning and locking via a web browser allows remote control and simple integration into experiments.

SUPERB COMPACT DESIGN Exceptionally compact (smaller than an iPad) with a completely sealed resonator.

ULTRA LOW NOISE: Typical RIN <0.05% with 0.1% rms power stability over 24 hours.



THE SOLSTIS PLATFORM IS FULLY AUTOMATED AND EASY TO CONTROL

Laser operations are fully automated via a unique web interface allowing systems to be controlled, updated and maintained from anywhere in the world. Easily integrated with lab tools and experiments via TCP/IP command sets. Diode drivers, quantum cascade laser diode drivers and temperature controllers also available.

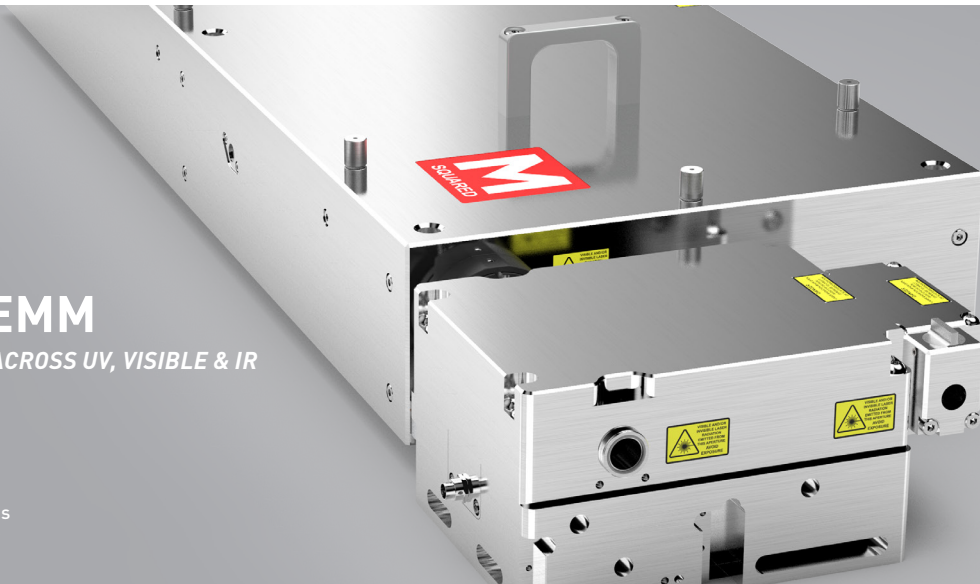


NEW

SOLSTIS-EMM

AUTOMATED TUNING ACROSS UV, VISIBLE & IR

240-340 nm
480-680 nm
1.1-4.5 μm
<500 kHz linewidth
Continuous or stepped scans



Solstis External Mixing Module (Solstis-EMM)

A new extension exclusively designed to complement the award-winning Solstis, CW narrow linewidth TiSapphire laser. It's not only a major breakthrough in laser technology, enabling access to hard to reach wavelengths in the UV, visible and IR regions, it also features the narrow linewidth, ease of use and ultra stable output for which Solstis is well-known.

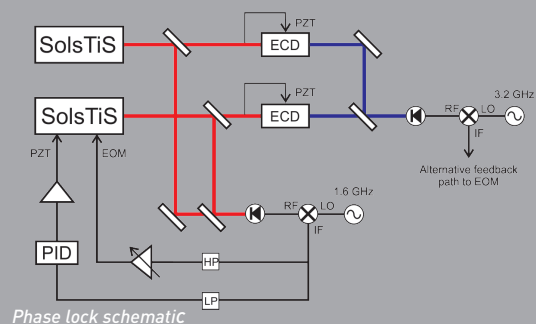
CUSTOM SOLUTIONS

M Squared has a highly collaborative approach with customers to provide additional system functionality, novel modules and advanced control systems. Example projects:

PHASE LOCK BETWEEN TWO SOLSTIS SYSTEMS

Achieved RMS phase error <math><0.01</math> rad from 10 kHz and 10 MHz with phase noise down to <math><-120</math> dB/Hz at 100 kHz; offset by up to 6.4 GHz

Application: Coherent excitation in Raman transitions towards high fidelity quantum operations.

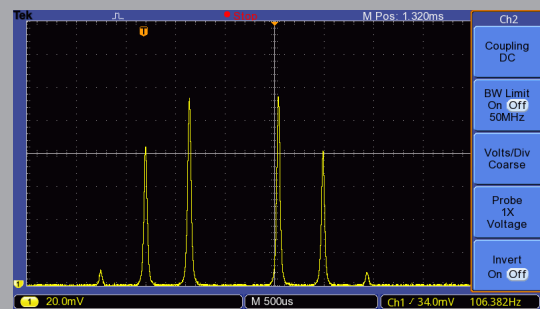


Phase lock schematic

RESONANT MODULATION MODULE

Generation of frequency sidebands at 369 nm, with simultaneous resonant doubling of carrier + sidebands; with rapid extinction of carrier to <math><99\%</math>.

Application: State preparation and shelving in quantum information processing.



2.1 GHz UV sidebands



M Squared designs and manufactures advanced laser platforms. Our high performance systems, such as the award-winning Solstis platform, are critical enablers in fundamental physics research.



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