Advanced Solid State Laser Systems for Space Tracking

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EOS Advanced Solid State Laser Systems in Operation

- A Pico-second pulse width system for Satellite Laser Ranging (SLR)
- A Nano-second pulse width system for tracking uncooperative targets

Both systems have been in operation for more than 2 years with excellent performance and reliability

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A new generation of advanced solid state laser systems have been developed for satellite laser ranging and tracking uncooperative targets by EOS since 2003

- Complete diode pumped – higher electro-optical efficiency
- Excellent Beam Quality at High Repetition Rate – x1.15 Diffraction limited
- Excellent beam pointing stability - <1 acrsec
- Integrated many most advanced solid state laser technologies
- high stability and reliability
- extremely low level of maintenance

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EOS SLR Laser System

- Consisting a mode-locked laser oscillator, a regenerative amplifier, a power amplifier and a SHG
- Semi-Conductor Saturable Absorption Mirror, developed by EOS in collaboration with ANU as passive mode-locker
- System can be upgraded to eyesafe wavelength @ 1.57 μm by implementing OPG and OPA

Pulse width	10 ps
Wavelength	532 nm
Repetition rate	1 - 100 Hz with power amplifier 1 - kHz regenerative amplifier only
Pulse energy @ 532 nm	14 mJ @ 100 Hz 0.6 mJ @ 1 kHz

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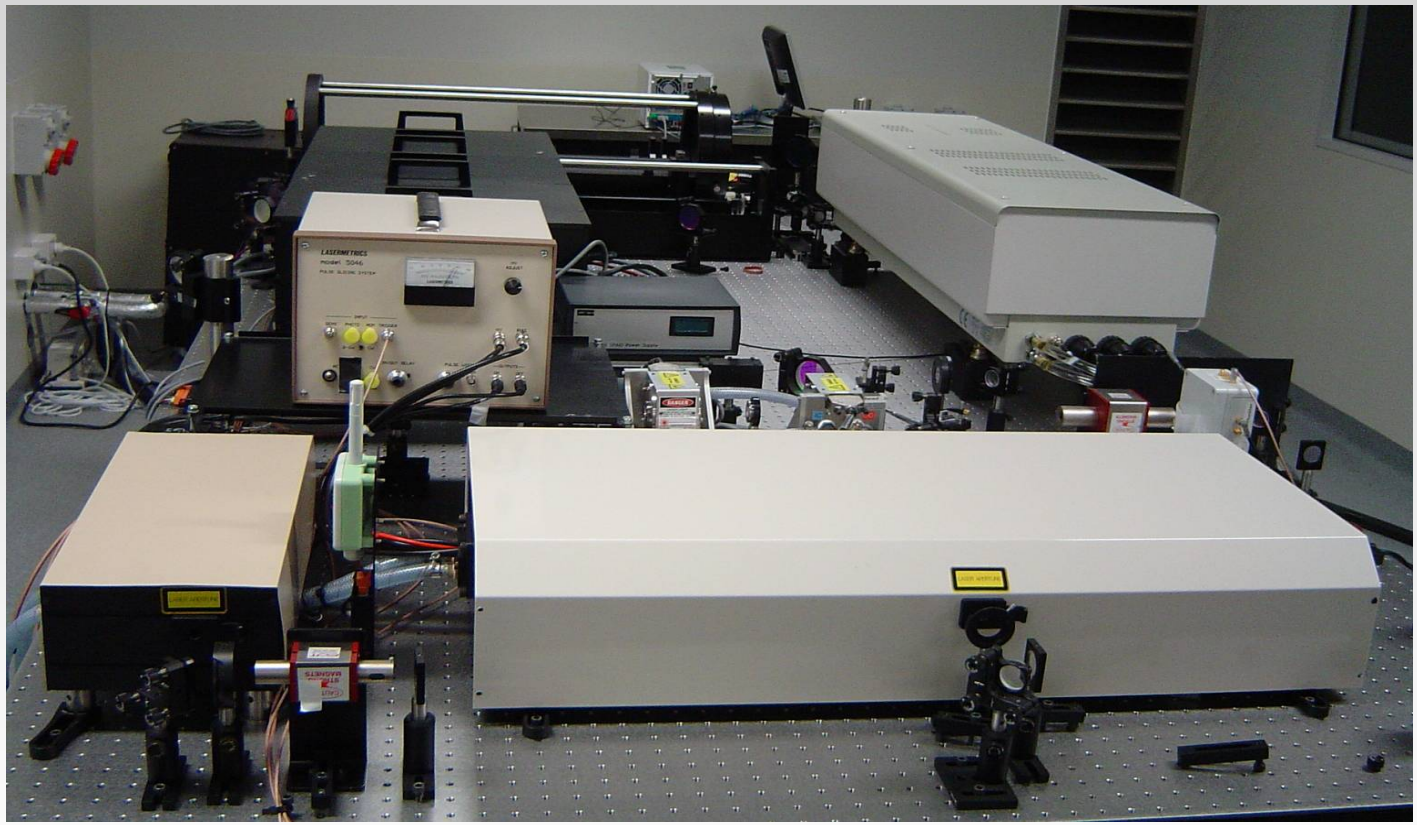
EOS SLR Laser System



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EOS High Power Nano-second Laser System

Advanced Technologies Integrated

- Complete Diode Pumped
- Single Frequency Oscillator
- Phase Conjugate Mirror (Stimulated Brillouin Scattering or SBS Cell) for wavefront distortion compensation, pulse width and pulse shape controls
- Imaging Relay for beam quality, and polarization controls
- Ultra-stable mechanical mounts

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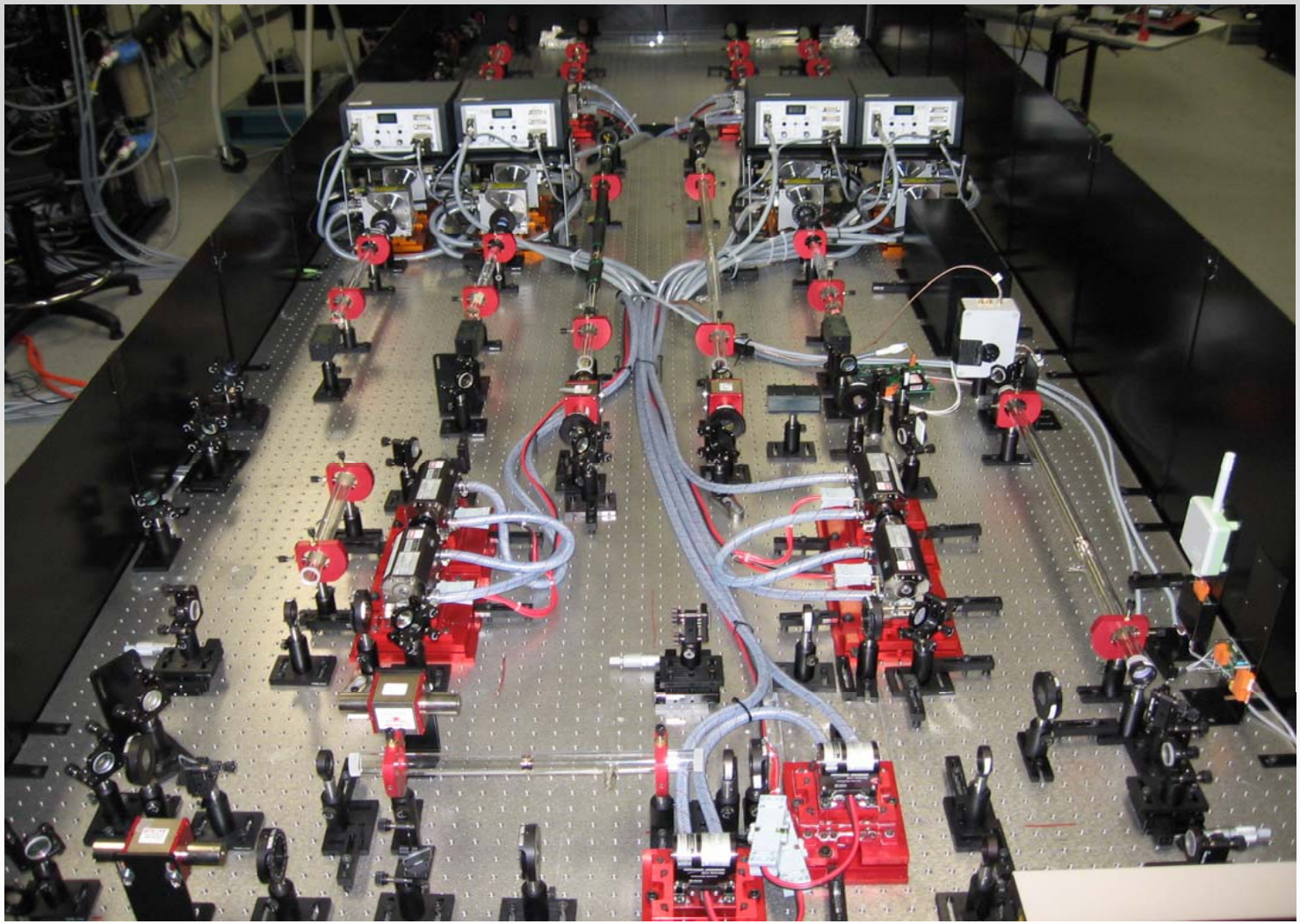
EOS High Power Laser System



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Other Advanced Solid State Laser Systems Under Development

- Sodium guide star laser system based on direct sum frequency mixing of the two spectral lines of Nd:YAG at 1064 and 1319 nm to generate light at 589 nm
- 2 kHz and 2 kilo-watt, repetition rate variable, pulse width variable system for space related applications

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