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Dual laser system for the HartRAO Lunar Laser Ranger: design, configuration and expected performance

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HartRAO has been planning and developing a Lunar Laser Ranger (LLR) for the past 10 years. This system will also be used for Satellite Laser Ranging during available operational time. We already have a 1 m optical telescope as well as a functional control room. We are now at the stage of procuring the remaining hardware components and implementing these according to the overall system design.

The laser system for this LLR has been designed in collaboration with and procured via the NASA laser ranging network contractor, Cybioms Corporation. The system consists of 2 lasers: one providing high-power green pulses at 20 Hz for lunar capability and another delivering low power green pulses at 1 kHz for satellite capability. These lasers have recently arrived in South Africa.

An overview of the laser system configuration and design as well as anticipated performance will be presented.

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