

hHz monostatic Lunar Laser Ranging at the WLRS

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To achieve an adequate signal to noise ratio high energetic picosecond laser pulses are mandatory for Lunar Laser Ranging. For that purpose usually flash-lamp pumped post amplifier stages are used, which are limited to repetition rates of up to 20 Hz. Another limitation in the repetition rate arises due to the fact that most Lunar Laser Ranging systems comprise a monostatic setup. In this kind of setup a mechanical switch is mandatory to protect the single photon sensitive receivers from laser stray light during laser pulse transmission. Higher pulse repetition rates at similar laser pulse energy on the other hand side lead to higher average laser power and therefore an increased data yield. At the WLRS we upgraded the laser post amplifier with diode pumped amplifier stages. In combination with our already implemented hHz T/R-switch we could successfully range the Luna17 corner cube array at a repetition rate of 250 Hz. The T/R-switch is polarisation based and works by transmission of circular polarised laser light. Recently we also implemented the possibility to switch from circular to linear polarisation. This promises a gain in signal strength for uncoated corner cube reflectors. We would like to describe the basic ideas of our setup and to present the implementations finished so far together with some initial results.