

# The Research on Key Technology of 1064nm Wavelength SLR and Measurement Experiment

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**Introduction:** The laser equipment with well performances of large pulse energy, high power, beam quality, pointing stability is indispensable to perform laser measurement to uncooperative targets with far distance and small size. The green 532nm wavelength of laser signal derived from 1064nm wavelength is commonly adopted in the global laser measurement campaign.

However the 1064nm wavelength laser signal has advantages over 532nm wavelength because of its good performances at the aspects of laser power, number of laser echoes, less atmospheric attenuation and will produce the technical advantages on the observation to uncooperative space targets. The researches on 1064nm wavelength laser ranging technology are performed and the relevant key techniques for building up the 1064nm wavelength SLR system, such as monitoring laser beam pointing and collimating laser beam and high efficiency detector, are analyzed in this paper.

Through upgrading the transmitting-receiving optical path for 1064nm laser signal on the 60cm SLR system, the preliminary laser measurement experiments to several ILRS satellites with 1064nm wavelength are successfully implemented to validate the technical feasibility and give supports for establishing laser ranging system with 1064nm wavelength, exploring the new laser ranging technology and promoting the technique development of laser measurement to uncooperative space targets.

## References:

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