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Laser altimeter design concepts for the moon

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The next decade will see several new missions to the Moon and one of the instruments expected to be part of several payloads is a laser altimeter. We have been evaluating the factors that need to be considered in some of the design concepts and how they meet a range of scientific and exploration objectives. For one instrument, designed for the US Lunar Reconnaissance Orbiter (LRO) mission, we have stressed lightweight, high maturity of components, and lower risk. For another purely scientific mission we have stressed advanced technology and high performance that requires a significant data-rate from the spacecraft. We will discuss the LRO instrument, the mission requirements, and describe the design of the instrument, its measurement performance, and the geophysical results we expect achieve. At this time, the plan is for the LRO spacecraft to be launched in the Fall 2008.