

SPACE PROPULSION SYMPOSIUM (C4)  
Advanced Propulsion: "Non Electric Non Chemical" (8)

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DESIGN OF A NEW VEHICLE PROPELLED BY MULTI-GBLS AND IT'S LAUNCH SCHEMES

**Abstract**

This paper proposed a new vehicle propelled by several ground based lasers. The vehicle looks like a flat airplane. The beam receiver is in the belly of the vehicle and protected by the vehicle. Thrust vector control is easy since the separation of the receiver and the thruster. The axis of the parabolic receiver mirror is parallel to the beam. But the direction of the thrust can be changed freely. The thruster works in air-breathing mode in atmosphere and rocket mode in space. A launch scheme is developed for the vehicle. Seven lasers are employed in the mission. Beam propagates only about 200km and beam spreading is not a serious problem for laser launch. The trajectory simulation shows that the payload ratio of the vehicle is much higher than traditional rocket.