

BEAM STEERING MIRROR

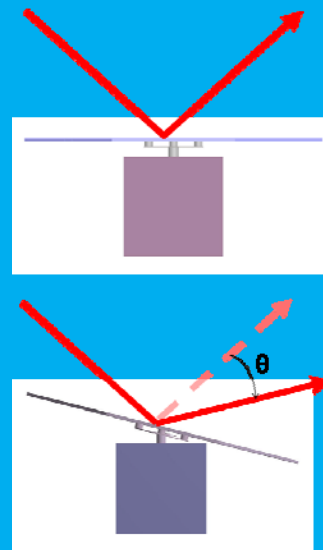
INO is a world-class center of expertise in industrial applications for optics and photonics, as well as a leading technology developer and provider of MEMS and MOEMS technologies. We have the equipment and expertise to handle the entire microsystem development cycle, from the simulation, design, and fabrication of devices through to their packaging and characterization.

Many civilian and defence applications require the manipulation of laser beams. The current techniques used for laser beam steering are often based on mechanical devices such as rotating mounts, gimbals, etc. Although they are relatively mature and widely used, these techniques have shortcomings (inertia, sensitivity to vibrations, etc.) that limit their performance.

The micromirror technology showcased here is a promising avenue for overcoming the limitations of traditional techniques. These large micromirrors are well suited to manipulating light beams. Depending on their configuration, they can be used as scanners, phase modulators, amplitude modulators, etc. Due to their low inertia, they are expected to be surprisingly rugged and their response time should be relatively short.

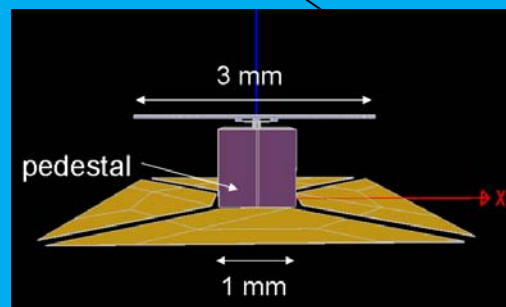
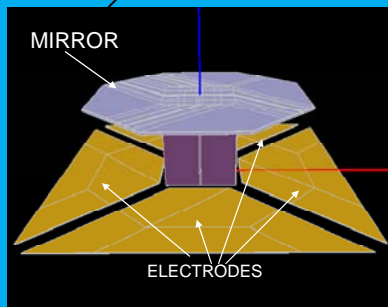
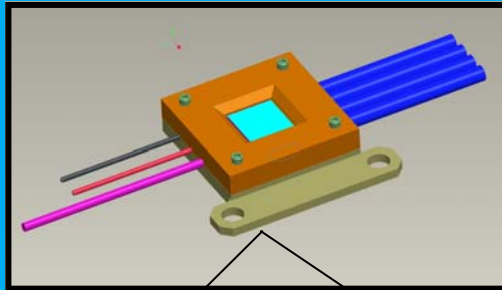
PRELIMINARY SPECIFICATIONS

- . Octagonal mirror, 7.5 mm²
- . Gimbal-like mechanical flexure, 2 rotation axes
- . Mechanical rotation angle: +/- 16° for each axis
- . Optical steering angle: a cone of about 60°
- . Targeted angular resolution and pointing accuracy: 1 mrad
- . Resonant frequency: higher than 30 Hz
- . Response time estimate: lower than 100 ms
- . Incident power: up to 1 W cw, 20 kW peak power



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MIRROR STRUCTURE



- .Most structural parts: silicon
- .Hinge: nickel
- .Mirror reflective layer: gold