

World's most sensitive torsion pendulum

During our Phase I and Phase II research programs for AFOSR during which the microthruster concept was developed, we invented, calibrated and used the world's most sensitive torsion pendulum.

Sensitive enough to measure the pressure exerted by 1 watt of light, the gage is based on torsion of a 78- μm glass fiber. This is barely visible in the picture. Look for

it along a vertical line passing through the small object in the lower center labeled "Mirror." The target and a balancing mass are located at the end of 2-cm arms.

The resulting gage was so frictionless that it required the damper at the bottom of the picture to permit repeated readings within a reasonable time.

Sensitivity: 100 pico-N-s.
Capacity: 2 $\mu\text{N-s}$.
Resettability: 6 μm axial target motion (stepper motor limitation). Calibration accuracy: +/- 4%.

