

LISA CHARGE MANAGEMENT SYSTEM: DISCUSSION AND ON-GROUND TESTING RESULTS

In space, the LISA test-masses will accumulate charge from high-energy charged particles penetrating through the spacecraft. The Charge Management System (CMS) controls the charge of the test mass using UV photo-electron emission in order to reduce the related force noise acting on the test mass to below the required level.

Performances and robustness of possible CMS for LISA will be discussed, and the results of an on-ground testing campaign performed by means of a torsion pendulum integrate with a copy of the gravitational reference sensor flown in LISA Pathfinder, and baselined for LISA, will be illustrated both in the case of Hg UV lamp source used in LISA Pathfinder and UV light-emitting diodes (LED).