A HIGH PERFORMANCE BALLOON PLATFORM FOR HIGH ANGULAR RESOLUTION X-RAY TELESCOPES

G. Di Cocco, A. Basili, T.Franceschini, L.A. Gizzi^, G. Landini, S. Silvestri

Istituto di Tecnologie e Studio delle Radiazioni Extraterrestri – CNR, Bologna, Italy
^Istituto di Fisica Atomica e Molecolare – CNR, Pisa, Italy

X-ray and gamma-ray telescopes are currently being developed which aim to achieve arcsecond angular resolutions. These systems are typically characterised by very long focal lengths end require fine and robust mechanics. Such features make these instruments heavy and bulky. Balloon-borne observations with X-ray telescopes therefore require a high pointing accuracy, a small tracking error and arcsecond resolution reconstruction of the pointing trajectory.
We are developing a platform in which new principles are being implemented to meet these severe requirements. In the new system the attitude determination system will be based on a high performance GPS system which will enable a pointing accuracy of a few arcminutes. Fine pointing and reconstruction of the pointing trajectory down to the arc-second level will be achieved by means of a star sensor equipped with a high-dynamic range CCD detector. The current status of the system will be described in detail and a summary of the expected performance of the system will also be given.