

HiPeG: A HIGH PERFORMANCE BALLOON GONDOLA FOR HIGH ANGULAR RESOLUTION X-RAY TELESCOPES

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The next generation of X-ray and gamma-ray telescopes, based upon Bragg or Laue diffraction are characterized by very long focal lengths and aim at sub-arcmin resolution imaging. Balloon-borne observations with this class of instruments require a high pointing accuracy, a small tracking error and arcsecond resolution reconstruction of the pointing trajectory.

Starting from the previous *LAPEX* experience, we have designed an entirely new platform in which the attitude determination system is based upon a high performance GPS and a star sensor equipped with a high-dynamic range CCD detector.

The azimuth motion system based upon a main pivot and a dual reaction wheel has been designed according to accurate numerical simulations to achieve a platform pointing accuracy of a few arcminutes. Fine pointing and reconstruction of the pointing trajectory down to the arc-second level is provided by the star sensor, an autonomous system which will use efficient star identification and tracking algorithms. The current status of the main sub-systems will be described in detail and the expected performance of the system will be discussed.