

SYMPOSIUM ON TECHNOLOGICAL REQUIREMENTS FOR FUTURE SPACE ASTRONOMY AND
SOLAR-SYSTEM SCIENCE MISSIONS (A7)
Scientific Motivation and Requirements for Future Space Astronomy and Solar System Science Missions (1)

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A ONE METER CLASS EYE FOR PLATO

Abstract

PLATO being selected as a Medium Size mission of ESA, is conceived as an optical observatory that will continuously look almost ininterruptly for several years into a gigantic area in the sky with high enough SNR to achieve detection of Earth-twins extra Solar system. In order to achieve such a goal a one meter class telescope with an equivalent focal length of the order of a fifth of such a length is required. This is accomplished through a set of 34 refractory very wide field objectives that retain their high quality onto several large format CCDs. This approach has a number of advantageous including very high dynamic range and multiplexity allowing for very strong reliability at system level. The technical development that allowed to achieve such performances is traced out involving the use of aspheric surfaces and large size non conventional optical materials, with a strong emphasis on the ability to produce, assemble and align such a small scale mass production within times.