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The Large Synoptic Survey Telescope's Moving Object Processing System

Siegfried Eggl[(1)], **R. Lynne Jones**[(2)], **Mario Jurić**[(3)], **Joachim Moeyens**[(4)], **Željko Ivezić**[(5)], **Matthew J. Holman**[(6)], **Matthew J. Payne**[(7)] **and Peter Vereš**[(8)]

[(1)(2)(3)(4)(5)] *Department of Astronomy, University of Washington, 15th Ave NE, Seattle, WA 98195, USA; eggl@uw.edu, lynnej@uw.edu, mjuric@uw.edu, moeyensj@uw.edu, ivezic@astro.washington.edu*

[(6)(7)(8)] *Harvard-Smithsonian Center for Astrophysics, 60 Garden St., MS 51, Cambridge, MA 02138, USA; mholman@cfa.harvard.edu, matthewjohnpayne@gmail.com, peter.veres@cfa.harvard.edu*

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ABSTRACT

The Large Synoptic Survey Telescope (LSST) is an 8m-class observatory currently under construction on Cherro Pachón, Chile. During its 10-year survey starting in 2022 LSST is expected to catalog roughly 60% of all near-Earth Objects (NEOs) with absolute magnitude H < 22, i.e. 140 m diameter and larger [1,2]. This significant contribution to planetary defense is made possible by LSST's 9.6 square degree field of view, a 3.2 Gigapixel camera and a rapid observational cadence that covers the entire visible sky every 3-4 days throughout the observing season. At the heart of LSST's capabilities to observe and discover solar system objects (SSOs) lies the moving object processing system (MOPS). We present recent developments in the design and implementation of the LSST MOPS, as well as how it will interact with the Minor Planet Center. Orbit catalogs exclusively based on LSST astrometry will be available on a yearly basis to serve survey simulation and debiasing needs.

References

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