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JASMINE-astrometric map of the galactic bulge

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Abstract. We introduce a Japanese plan of infrared (z-band:0.9μm) space astrometry(JASMINE-project). JASMINE is the satellite (Japan Astrometry Satellite Mission for INfrared Exploration) which will measure distances and apparent motions of stars around the center of the Milky Way with yet unprecedented precision. It will measure parallaxes with the accuracy of 10 micro-arcsec and proper motions with the accuracy of 4 micro-arcsec/year for stars brighter than z=14mag. JASMINE can observe about ten million stars belonging to the bulge components of our Galaxy, which are hidden by the interstellar dust extinction in optical bands. Number of stars with $\sigma/\pi < 0.1$ in the direction of the Galactic central bulge is about 1000 times larger than those observed in optical bands, where π is a parallax and σ is an error of the parallax. With the completely new map of the bulge in the Milky Way it is expected that many new exciting scientific results will be obtained in various fields of astronomy. We will introduce some scientific topics which will be obtained by JASMINE. Presently, JASMINE is in a development phase, with a target launch date around 2015. We adopt the following instrument design of JASMINE in order to get the accurate positions of many stars. We adopt a 3-mirrors optical system (modified Korsch system) with a primary mirror of 0.75m. On the astro-focal plane, we put dozens of new type of CCDs for z-band to get a wide field of view. JASMINE mission takes a frames-link method which can be applied for the survey of the Galactic bulge, as a observing strategy. The consideration of overall system (bus) design is now going on in cooperation with Japan Aerospace Exploration Agency (JAXA). The introduction of JASMINE and the present status of the project will be shown in the presentation.

Key words. Astrometry – Galaxy: bulge – Galaxy: kinematic and dynamics – Galaxy: evolution – infrared: galaxy

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