

Methods of the coordinate systems tying of two images obtained in different reference systems

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Abstract

© 2016, International Journal of Pharmacy and Technology. All rights reserved. The aim of this work was to develop a method of binding coordinate systems of the two images obtained in different systems of reference data. The proposed method can be used in the analysis of coordinate-time support of objects moving at different speeds in the phase space. The method was tested in conjunction of lunar objects to the inertial coordinate system on the basis of the use of two images: the Moon and the star field. As receivers that allow to obtain such images, CCD-matrix systems were used. Precision of images binding in the system of equatorial coordinates in average equaled to in right ascension ($0.''04 \div 0.''13$), declination - ($0.''05 \div 0.''11$). The paper represents a comparative analysis of the methods for the preparation of the Moon images without others stars and with the stars. The practical results of a system of double images creation, which move at different speeds on the celestial sphere are given. Double image method makes it possible to obtain binding of lunar objects to the stars in an absolute way with high accuracy. These studies are of great practical application in the field of space astrometry and celestial mechanics.

Keywords

Coordinate systems, Inertial coordinate system, Method of separate images, Optical observations