

应用

基于大气偏振模式对称性检测的航向角获取方法

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摘要:

基于自然特性的导航科学具有重要的研究与应用价值,本文针对仿生偏振光导航技术中的航向角获取问题,研究了一种基于大气偏振模式对称性检测的航向角获取方法。文章建立在对大气偏振模式分布规律的分析基础上,对获取的大气偏振模式图像进行对称性检测,利用大气偏振模式分布的对称性特征,根据检测结果确定大气偏振模式对称轴,即太阳子午线位置,进而解算出航向角信息,并通过实验验证了本文所述方法的有效性。本文提出的基于大气偏振模式对称性检测的航向角获取方法是仿生偏振光导航的一个重要研究内容,对基于自然特性的导航方法与策略研究,具有重要的实践指导意义。

关键词: 大气偏振模式 偏振光导航 对称性检测 航向角

The method of the navigation direction angle acquisition based on the symmetry detection of the atmosphere polarization mode

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Abstract:

With the technological and social development, navigation science based on natural features, receives wide attention, and has important research and application value. For the acquisition problems of navigation direction angle in the bionic polarization navigation technology, in this paper, a method is proposed to acquire the navigation direction angle based on the symmetry detection of the atmosphere polarization mode. This method is established on the base of the analysis of the atmosphere polarization model distribution. Using the symmetry of the distribution of atmospheric polarization mode and according to the test results of the symmetry, the radial position of the sun is determined, and then the navigation heading angle information calculate is calculated. At last, the corresponding experiment is also given to test the method of navigation direction angle acquisition based on the symmetry detection of the atmosphere polarization mode. The method of the navigation direction angle acquisition based on the symmetry detection of the atmosphere polarization mode, is very important in the research of bionic polarization navigation, and has the important practical significance for the Navigation methods and strategies based on natural characteristics.

Keywords: Atmosphere polarization pattern polarization navigation symmetry detection navigation direction angle

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