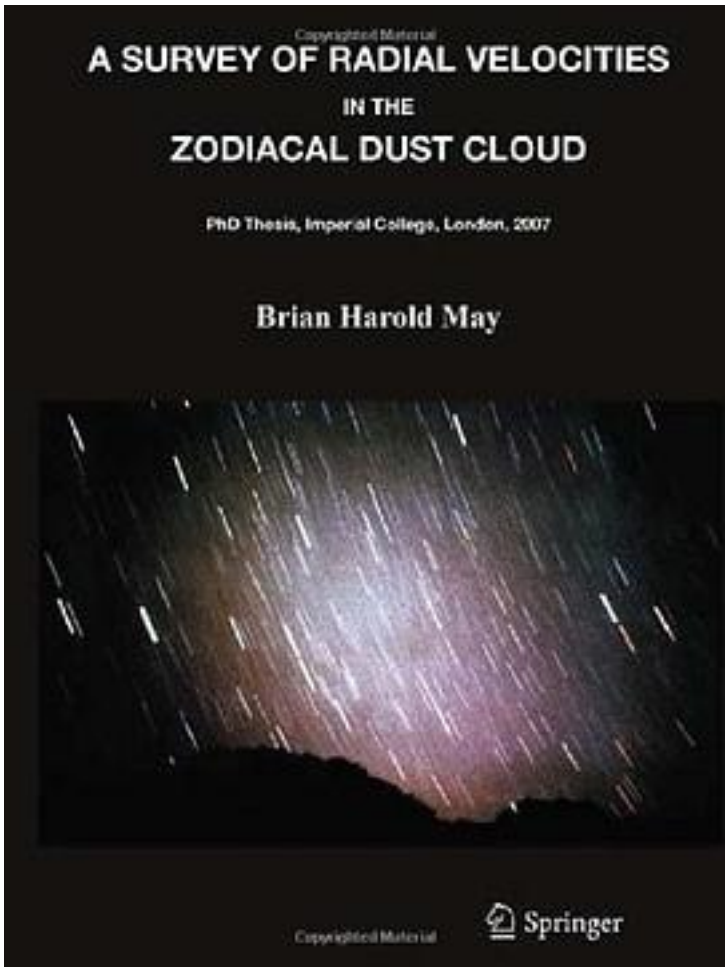
A Survey of Radial Velocities in the Zodiacal Dust Cloud



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The Zodiacal Light, that misty diffuse cone of light seen in the West after Sunset and

the East before Sunrise, is a beautiful and intriguing phenomenon. Even though everyone can enjoy the sight from a suitably dark location, it is poorly understood, and has been the subject of relatively little research. Brian May began his research into the subject in 1970, and was finally awarded his PhD in 2007, after a hiatus of more than 30 years pursuing his other career as guitarist with his rock band Queen. This book is Brian s thesis, and as such presents the results of his research for astronomers. This thesis documents the building of a pressure-scanned Fabry-Perot Spectrometer, equipped with a photomultiplier and pulse-counting electronics, and its deployment at the Observatorio del Teide at Izana in Tenerife, at an altitude of 7,700 feet (2,567 m), to record high-resolution spectra of the Zodiacal Light. The aim was to achieve the first systematic mapping of the Magnesium I (MgI) absorption line in the night sky. More than 250 scans of both morning and evening Zodiacal Light were obtained, in two observing periods in 1971 and 1972. The scans showed profiles modified by various Doppler-shifted components with respect to the unshifted shape seen in daylight. The set of spectra obtained is compared with predictions made from a number of different models of a dust cloud, assuming various distributions of dust density as a function of position and particle size, and differing assumptions about their speed and direction. The observations fit predominantly prograde models fairly well, but show a morning-evening asymmetry, different in the two observing periods. Models are investigated containing various components, including prograde and retrograde orbiting dust around the Sun, a drift of interstellar material though the Solar System, and light from distant emitting matter. The implications for possible asymmetries of the Zodiacal Cloud are discussed. Other researches on the Zodiacal Dust Cloud are reviewed, including recent insights into its structure, orientation, and evolution. Brian s observations are evaluated in this context.

作者介绍:

From the reviews:

"The Queen guitarist Brian May has achieved a new milestone: he has published his PhD thesis in astronomy. ⋯ Entitled A Survey of Radial Velocities in the Zodiacal Dust Cloud, his thesis analyses what happens to the dust particles left over from the formation of the solar system about 4.6 billion years ago. ⋯ Mike Lockwood, a physics professor at Southampton University, said May’ s work was timely ⋯ . Brian Cox, a physics professor at Manchester University, applauded May’ s tenacity. ⋯ That’ s hugely impressive." (Jonathan Leake and Robert Watts, Times Online, August, 2008)

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标签

BrianMay

博士论文

天文

Queen

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May

科普

queen

评论

对于这样的人，人生的机会成本真大。

上来的引用就是歌词，后面还感谢了Queen，不愧是兼职吉他手x
不知道没有天文学背景能不能看懂，但是当作一种激励（？）看吧

本人到此一游

没看过……在波西米亚狂想曲过来的

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书评

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