



Stellar limb darkening effects on transmission spectroscopy

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Transmission spectroscopy is the main tool to detect effective radius-changes at different wavelengths in planetary atmospheres, which then can be translated into chemical composition on different layers. Usage of this observing technique requires a very precise knowledge of the stellar parameters and stellar surface brightness distribution. These effective radius-changes are in the order of 0.1%, so one would have to know the stellar surface brightness distribution at least within this precision. However, in this paper, we argue that we do not know this quantity presently better than 1-2% in the best cases (and the worst case scenario there may exist up to 40% uncertainty in the amount of stellar light surface distribution), and the measurements require a very careful analysis. We list here the effects which one should take into account during the interpretation of observational data and we present some improvements in the understanding of the data.