

# Article Title

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## Abstract

*The recent tensions on the measured value of the Hubble constant between CMB and astrophysical observations, has triggered the need of new methods for its determination. In view of this, an effort has been done by H0LiCoW to use the gravitational lensing of quasars as a probe for  $H_0$ . This type of measurement requires a long term monitoring of lensed quasars (of the order of years). Since big telescopes have to deal with many observational requests, it is difficult to have a constant monitoring over the years, therefore this task can be achieved more easily by small/medium size telescopes. However, the number of lensed quasars with multiple images that can be resolved by these telescopes drops drastically. Here we present a method to deal with **non resolved** lensed quasars. This method has also the advantage of being less dependent on the microlensing effect of the lens galaxy.*

## I. INTRODUCTION

In the last years, the precision of the Planck [cita] experiment, whose task was to analyse the Cosmic Microwave Background (CMB) anisotropies, has allowed to fully test our standard cosmological model  $\Lambda$ CDM which assumes the existence of Dark Energy ( $\Lambda$ ) and Cold Dark Matter (CDM). In particular, in addition to the minimal 6 parameters describing  $\Lambda$ CDM, the CMB anisotropies allow to indirectly constrain other parameters, such as the current expansion rate of the Universe,  $H_0$ , whose inference strongly depends on the assumed cosmological model. For example, relaxing the spatial flatness hypothesis of our Universe or the constant equation of state for the dark energy, would change the estimated value of  $H_0$ .

In parallel, there are other independent methods to measure  $H_0$ , such as the distance ladder [cita], water masers [cita], the time delay between multiple images of gravitational lensed quasars [cita H0LiCOW] and, in the future, gravitational waves [cita].

In this paper we will focus on the gravitational

lensing method, which allows to measure  $H_0$ , as firstly suggested by Refsdal [1], which has a weaker dependence on the cosmological parameters if compared to the CMB analyses.

## II. METHODS

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\*A thank you or further information

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### III. RESULTS

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<sup>1</sup>Example footnote

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## IV. DISCUSSION

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#### REFERENCES

- [1] S. Refsdal, *MNRAS*, 128, 307 (1964)
- [Figueredo and Wolf, 2009] Figueredo, A. J. and Wolf, P. S. A. (2009). Assortative pairing and life history strategy - a cross-cultural study. *Human Nature*, 20:317–330.