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A new constraint on the expansion history of the Universe with cosmic chronometers in VANDELS

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In the era of precision cosmology, exploring new and complementary approaches to measure the expansion history of the Universe is crucial to increase the accuracy in the measurements and keep systematic effects under control. A novel approach that provides cosmology-independent constraints on the Hubble parameter is based on the analysis of the differential age evolution of massive and passively evolving galaxies as “cosmic chronometers” (CC). In this talk, I will present a new measurement of H(z) at z˜1.26 obtained from the analysis of a sam- ple of CC extracted from the survey VANDELS. In our work, we explore the feasibility of deriving accurate and robust differential ages from full-spectrum fitting in the range 1 < z < 1.5, derive the physical properties of the population, study in details the associated systematic uncertainties, and propagate those to the total error budget. These data are used both to derive a new measurement of the Hubble constant H0 (assuming a cosmological model) and to derive a cosmology independent estimate of the Hubble parameter at z~1.26. I will conclude discussing how this measurement can contribute to shed some light on the H0 tension, and the potential of this method.

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