CANTATA COST Action FInal Meeting

Schedule

	17th Sep	18th Sep
9:30-9:45	Welcome	
9:45-11:15	WG1 Salvatore Capozziello (35+10) Emanuel Saridakis (35+10)	Core Meeting
11:15-11:45	Coffee break	Coffee break
11:45-13:15	WG3 Eleonora Di Valentino (35+10) Alessio Spurio-Mancini (35+10)	WG2 Diego Rubiera (35+10) Jutta Kunz (35+10)
13:15-15:15	Lunch break	
15:15-17:45	Complementary skills session José M Martín Senovilla Gonzalo Olmo	MC Meeting Farewell Vedad Pasic Ruth Lazkoz Chorus
19:00-20:45	G-ambassadors documentary	

INVITED TALKS Abstracts.

Salvatore Capozziello (Naples U., Italy).

Title. "FOUNDATION AND COSMOLOGICAL APPLICATIONS OF NON-LOCAL GRAVITY IN METRIC AND TELEPARALLEL FORMULATIONS".

Abstract. Recently, the so-called Non-Local Gravity acquired a lot of interest as an effective field theory towards the full Quantum Gravity. In this talk, we sketch its main features, discussing, in particular, possible infrared effects at astrophysical and cosmological scales. In particular, we focus on general non-local actions including curvature invariants like the Ricci scalar and the Gauss-Bonnet topological invariant, in metric formalism, or the torsion scalar, in Teleparallel formalism. In both cases, characteristic lengths emerge at cosmological and astrophysical scales. Furthermore, it is possible to fix the form of the Lagrangian and to study the cosmological evolution considering the existence of Noether symmetries.

Emmanuel Saridakis (Athens National Technical U., Greece).

Title. "Torsional modified gravities: can gravitational wave observations serve as their smoking gun?"

Abstract. We investigate the effects of various torsional modified gravities on the properties of gravitational waves, and we analyze the possibility of using multi-messenger data as a smoking gun for this class of gravitational theories.

Eleonora Di Valentino (Manchester U., UK).

Title. "COSMIC DISCORDANCES"

Abstract. The Cosmic Microwave Background (CMB) temperature and polarization anisotropy measurements from the Planck mission have provided strong confirmation of the LCDM model of structure formation. However, there are a few interesting tensions with other cosmological probes and anomalies in the data that leave the door open to possible extensions to LCDM. The most famous ones are the Hubble constant and the $\sigma 8$ parameter tensions, the Alens anomaly and a curvature of the Universe. I will review all of them, showing some interesting extended cosmological scenarios, in order to find a new concordance model that could explain the current cosmological data.

Alessio Spurio-Mancini (U. College London, UK)

Title. "CONSTRAINING DARK ENERGY AND MODIFIED GRAVITY WITH COMBINED LARGE-SCALE STRUCTURE PROBES"

Abstract. One of the main goals of current and future surveys is to combine cosmological probes to constrain dark energy and modified gravity models. In this talk I will demonstrate how weak gravitational lensing and other observables can be applied to achieve this. I will present a combined analysis of weak lensing, galaxy-galaxy lensing and galaxy clustering from the Kilo-Degree Survey (KiDS) and the Galaxy And Mass Assembly (GAMA) survey. This analysis sets constraints on Horndeski gravity, which includes a vast number of dark energy and modified gravity models. I will show how these constraints can be improved with future data from Stage IV surveys, such as Euclid, and discuss some of the challenges these surveys will face.

Diego Rubiera-Garcia (Madrid Autonoma U., Spain)

Title. "TESTING MODIFIED GRAVITY WITH NON-RELATIVISTIC STARS"

Abstract. We argue that it is possible to test modified gravity using non-relativistic stars, and illustrate it with the computation of the minimum main-sequence mass in Palatini quadratic f(R) gravity and its comparison with observational data.

Jutta Kunz (Oldenburg U., Germany)

Title. "SCALARIZED BLACK HOLES"

Abstract. Black holes are excellent astrophysical laboratories to test the strong gravity regime and thus the Kerr hypothesis, since alternative theories of gravity may lead to black holes that differ distinctly from those of General Relativity. When adding higher curvature terms to gravity as, for instance, in the form of the Gauss-Bonnet term coupled to a scalar field, scalarized black holes result. Here we discuss several types of scalarization of black holes, including the recently found spin-induced spontaneous scalarization.

José Senovilla (Basque Country U., Spain)

Title. "TBA".

Abstract. Tba.

Gonzalo Olmo (Valencia U., Spain)

Title. "VISIBILITY AND IMPACT IN THE COVID-19 ERA"

Abstract. The number of daily published research papers has grown considerably in the last few years, leading to critical situations in certain disciplines such as those related to COVID19, with several thousand papers per month (!). This forces us to take more active roles in the dissemination of our research because what makes your paper more interesting than others? How can authors increase the visibility and impact of their research? How can one measure that "impact"? Institutions and selection committees care about publication in prestigious outlets but also want their staff to become well-known and well-regarded in their fields. How can you build a reputation in your field? I will talk about the social dimension of science and its relevance for a successful scientific career in the XXI century. I will introduce some useful tools and tips that may help design a strategy to improve the visibility of your research, collaborations, and other activities in the scientific community.