Contribution ID: **18** Type: **not specified**

Protochime: First steps towards a gravitational dark matter detector

Friday 10 September 2021 14:40 (20 minutes)

The existence of dark matter is firmly established from various observations in Cosmology, Astrophysics, and Particle physics. However, most experiments trying to discover the building blocks of dark matter assume additional channels that allow interactions with baryonic matter, as pure gravitational effects are extremely difficult to detect. This assumption, however, is not yet backed by astrophysical evidence and has not resulted in any detection of a dark matter particle.

The Windchime Project aims to be the first experiment to probe dark matter in both the Planck mass regime and the ultralight regime for direct gravitational purposes only. The first prototype of this experiment, Protochime, was developed by an international collaboration between Colombia (Universidad Nacional de Colombia) and the United Stated (Purdue University) and is already capable of producing rudimentary but purely gravitational constraints in some BSM models. In this talk, an overview of The Windchime Project is disclosed, along with a description of Protochime and its first results.

Author: ARCILA MALDONADO, Juan Pablo (Universidad Nacional de Colombia)

Co-authors: Dr CASTAÑEDA, Leonardo (Universidad Nacional de Colombia); Dr LANG, Rafael

Presenter: ARCILA MALDONADO, Juan Pablo (Universidad Nacional de Colombia)

Session Classification: CoCo