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Analytical Chemistry 2018: The effect of gravitational waves and dark matter in daily life - Edward H Jimenez - Central University of Ecuador

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Dark matter interacts with baryonic matter through gravitational force and weak force. There are reasons to believe it does not interact directly with the strong nuclear force. Moreover, if dark matter is hidden in the nuclear surface, then it can be detected through a variation of the effective K-edge cross section. On the contrary, if it is hidden inside the nuclear core, then it must produce a variation of the nuclear viscosity. The Femtoscope and low-energy x-ray spectroscopy allow us to measure the K-edge resonance and, at the same time, the absence or not of dark matter. We present two methods on the use of K-edge XANES spectroscopy for organic and inorganic compounds, one theoretical and one experimental. We can determine the absence or not of dark matter in the atomic nucleus, essentially in Phosphorus, Xenon, Thulium and Chromium. The algorithms are sufficiently manageable. This allows us to illustrate that our experimental arrangement is in agreement with underground laboratories providing direct detection experiments such as SNOLAB, Gran Sasso, Canfranc, Deep Underground Science and Engineering Laboratory and the China Jinping Underground Laboratory. On the other hand, after processing the information of 12000 cancer patients, who have received doses of radiation with energies of the order of 6 MeV, we review all the treatment protocols before an irradiation. We have detected in a single file, recorded in radiography and digital information, where a part of the LINAC moved at a speed close to light in a vacuum, indicating a possible existence of gravitational waves. The coefficient $\Delta L / L = 0.00005$, is higher than the value measured on 2017 by Nobel Prize in physics, which is $\Delta L / L = 10\text{-}18$.

The Laser Interferometer Space Antenna (LISA) will enable astrophysicists to observe gravitational waves emitted by black holes as they collide with or capture other black holes. LISA will consist of three spacecraft orbiting the sun in a constant triangle formation. Gravitational waves passing through will distort the sides of the triangle slightly, and these minimal distortions can be detected by laser beams connecting the spacecraft. LISA could therefore add a new sense to scientists' perception of the universe and enable them to study phenomena invisible in different light spectra.

Scientists from the Center for Theoretical Astrophysics and Cosmology of the University of Zurich, together with colleagues from Greece and Canada, have now found that LISA will not only be able to measure these previously unstudied waves, but could also help to unveil secrets about dark mark .

Biography

Edward H Jimenez has a PhD in Applied Mathematics from the University of Saint Etienne in France, his Bachelor is in Nuclear Physics and his masters are in Game Theory and Artificial Intelligence. Currently, he is a professor at the Central University of Ecuador in the Faculty of Chemical Engineering, and has worked for 19 years in the oil industry in the area of catalysis and nanotechnology of Si / Al / P using x-ray spectroscopy. He has published more than 20 papers with referee and 6 books of high impact in Ecuador. Nicolas Recalde, has worked for 15 years in cancer radiotherapy at Georgetown University Medical Center and Inova Health System, USA. He was Chief Medical Physicist at Potomac Radiation Center in Virginia, USA. He is a diplomate of the American Board of Radiology and a member of the American Association of Physicists in Medicine.

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