International scientific conference

“Algebraic and Geometric Methods of Analysis”

Book of abstracts

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Conference webpage: *imath.kiev.ua/~topology/conf/agma2019/*

List of topics

- Algebraic methods in geometry
- Differential geometry in the large
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- General and algebraic topology
- Dynamical systems and their applications
- Geometric problems in mathematical analysis
- Geometric and topological methods in natural sciences
- History and methodology of teaching in mathematics

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Algebraic and geometric questions about a FTL physics

Enzo Bonacci
(Liceo Scientifico Statale "G.B. Grassi", Latina, Italy)
E-mail: enzo.bonacci@liceograssilatina.org

The recent proposal of a negative mass fluid to explain both the dark matter and energy [7] has renovated the interest for cosmological solutions based upon non-ordinary masses. Challenging the Λ-CDM paradigm, some fringe models are grounded on hypothetical interactions with antimatter [5] whereas others suppose the influence of faster than light (FTL) imaginary mass ([4], [6], [8]). More than a decade ago ([1, 2, 3]) we supplied an organic description of all the possible states (positive, negative and imaginary mass) subsequent to modified Lorentz's equations giving physical significance to the energetic condition $absE < m_0c^2$. Namely, we assumed that a fermion could pass from negative energy (identified as antimatter) to positive levels (i.e., the ordinary matter) through the interval between $-m_0c^2$ and $+m_0c^2$ where it would behave like a luxon ($v = c$)or a tachyon ($v > c$) keeping its half-integer spin. We wish to illustrate the algebraic and geometric questions behind a so formulated FTL physics, included a falsification test currently being assembled at CERN's Antiproton Decelerator.

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Зміст