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ENERGY-DEPENDENT PHENOMENOLOGICAL METRICS AND FIVE-DIMENSIONAL EINSTEIN EQUATIONS

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We propose a new Kaluza-Klein-like scheme based on a five-dimensional Riemannian space in which energy plays the role of the fifth dimension and spacetime is deformed. The solutions of the five-dimensional Einstein equations in vacuum allow us to recover, as special cases, the energy-dependent phenomenological metrics, describing the four fundamental interactions, recently derived from the analysis of some experimental data.

Key words: broken Lorentz invariance, deformed Minkowski space, five-dimensional relativity

The problem of the ultimate geometrical structure of the physical world - both at a large and a small scale -has been debated for long time. After Einstein, the generally accepted view is that physical phenomena occur in a four-dimensional spacetime, which possesses

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