

A NEW POINT OF VIEW ON $(1+3)$ THREADING OF SPACETIME

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ABSTRACT. We present a new method for the study of the $(1+3)$ threading of a spacetime (M, g) . The new approach is based on the theory of horizontal tensor fields and on the Riemannian horizontal connection. We obtain, in a covariant form, the fully general $3D$ equations of motion in (M, g) . We define and study a $3D$ force and obtain a new identity satisfied by geodesics on (M, g) . Finally, we apply the method developed in the paper to the study of motions in a Friedmann-Robertson-Walker universe and in a Kerr black hole.

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