

ON THE STRUCTURE OF EINSTEIN WARPED PRODUCT SEMI-RIEMANNIAN MANIFOLDS

BENEDITO LEANDRO¹

ABSTRACT. We consider a class of Einstein warped product semi-Riemannian manifolds $\widehat{M} = M^n \times_f N^m$ with $n \geq 3$ and $m \geq 2$. For \widehat{M} with compact base and Ricci-flat fiber, we prove that \widehat{M} is simply a Riemannian product space. Then, when the base M is conformal to a pseudo-Euclidean space which is invariant under the action of a $(n - 1)$ -dimensional translation group, we classify all such spaces. Furthermore, we get new examples of complete Einstein warped products Riemannian manifolds.

¹ UNIVERSIDADE FEDERAL DE GOIÁS, CENTRO DE CIÊNCIAS EXATAS, REGIONAL JATAÍ, BR 364, KM 195, 3800, 75801-615, JATAÍ, GO, BRAZIL.

E-mail address: bleandroneto@gmail.com¹

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