SEMINÁRIO DE GEOMETRIA DIFERENCIAL

Classification of base of warped product almost Ricci solitons

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Abstract. In this conference we introduce the notion of Ricci-Hessian type manifolds $(\mathbb{M},g,\varphi,f,\lambda)$ which is closely related to the construction of almost Ricci solitons realised as a warped product. We classify certain classes of the Ricci-Hessian type manifolds and derive some implications for almost Ricci solitons and generalised m-quasi-Einstein manifolds. We consider two complementary cases: ∇f and $\nabla\varphi$ are linearly independent in $C^\infty(\mathbb{M})$-module $\mathfrak{X}(M)$; and $\nabla f = h\nabla\varphi$ for a smooth function h on $\mathbb{M}$. In the first case we show that the vector field $\nabla\lambda$ belongs to the $C^\infty(\mathbb{M})$-module generated by ∇f and $\nabla\varphi$, while in the second case, under additional hypothesis, the manifold is, around any regular point of f, locally isometric to a warped product. It is a joint work with Manoel V. M. Neto - UFPI.