GENERALIZED QUASI YAMABE GRADIENT SOLITONS

por

Hudson Pina de Oliveira

E-mail address: hudsonmat@hotmail.com

Benedito Leandro Neto

E-mail address: benedito.leandro@hotmail.com

Abstract: A complete Riemannian manifold (M^n, g), $n \geq 3$, is a generalized quasi-Einstein manifold, if there exist three smooth functions f, μ and β on M such that

$$Ric + \nabla^2 f - \mu df \otimes df = \beta g, \tag{1}$$

A complete Riemannian manifold (M^n, g), $n \geq 3$, is a generalized quasi Yamabe gradient soliton (GQY manifold), if there exist a constant λ and two smooth functions f, μ on M such that

$$(R - \lambda)g = \nabla^2 f - \mu df \otimes df \tag{2}$$

In this paper,from the relationship between Weyl tensor (W) and the covariant tensor (D), we proof that a nontrivial complete and connected generalized quasi Yamabe gradient soliton must be always a quasi Yamabe gradient soliton (μ constant) and admits a warped product structure. Moreover, a nontrivial complete and connected locally conformally flat generalized quasi Yamabe gradient soliton has a more special warped product structure the type;

$$(\mathbb{R}, dr^2) \times_{|\nabla u|} (N^{n-1}, \overline{g}_N) \tag{3}$$

where N is a space form.

Brasília

2016