ON QUASI-EINSTEIN MANIFOLDS

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A semi-Riemannian manifold (M, g), $n = \dim M \geq 3$, is said to be an *Einstein manifold* if its Ricci tensor S is proportional to the metric tensor g, i.e. $S = \frac{\kappa}{n}\, g$ holds on M, where κ is the scalar curvature. More generally, (M, g), $n \geq 3$, is called a *quasi-Einstein manifold* if at every point $x \in M$ its Ricci tensor S satisfies $\operatorname{rank}(S - \alpha\, g) \leq 1$, $\alpha \in \mathbb{R}$, i.e. the condition $S = \alpha\, g + \varepsilon\, w \otimes w$, $\varepsilon = \pm 1$, $w \in T^*_x M$, $\alpha \in \mathbb{R}$, holds at x. Quasi-Einstein manifolds arose during the study of exact solutions of the Einstein field equations and investigation in quasi-umbilical hypersurfaces of conformally flat spaces. In this talk we present results on quasi-Einstein warped product manifolds and quasi-Einstein hypersurfaces in space forms. Our talk bases on [1]-[7].

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