



## Bach-#&#x2113;at manifolds and conformally Einstein structures /

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Einstein manifolds

Estructuras de Einstein

Matemáticas

Monografía

Einstein manifolds, being critical for the Hilbert-Einstein functional, are central in Riemannian Geometry and Mathematical Physics. A strategy to construct Einstein metrics consists on deforming a given metric by a conformal factor so that the resulting metric is Einstein. In the present Thesis we follow this approach with special emphasis in dimension four. In this work we classify four-dimensional homogeneous conformally Einstein manifolds and provide a large family of strictly Bach-flat gradient Ricci solitons. We show the existence of Bach-flat structures given as deformations of Riemannian extensions by means of the Cauchy-Kovalevskaya theorem

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