On the classification of
warped product Einstein metrics

William Wylie

University of Pennsylvania

The question of when an Einstein metric can be written as a warped product is posed in the text *Einstein metrics* by Besse. Recently, there have been some interesting results about these spaces found by Kim–Kim, Case–Shu–Wei, and Case. They take the perspective of studying these metrics by studying the equation on the base of the warped product. The resulting equation is similar to the Ricci soliton equation and is a natural equation from the work of Bakry–Emery and their collaborators on curvature dimension inequalities.

We will also take this perspective and prove two new results: one is an extension of the work of Kim and Kim and Case-Shu-Wei to manifolds with boundary; the other is a classification result of warped products Einstein metrics over locally conformally flat base space.