

Smale-Barden manifolds with K-contact and Sasakian structures

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Abstract: We show that under some mild restrictions, there exists a closed 5-dimensional manifold with vanishing first integral homology which carries K-contact structures but does not carry any Sasakian structure. This yields a partial answer to a question posed by Boyer and Galicki. In the talk, I present an overview of this result together with a more general research program. This is a joint work with Vicente Munoz and Juan Angel Rojo.