On the classification of Ricci solitons

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In this presentation, we will update our work "On the classification of Ricci Solitons", we prove that an n-dimensional steady gradient Ricci soliton with pinched Ricci curvature is either Ricci-flat with a constant potential function, or a quotient of the product steady soliton. First, we will build a divergence formula (Lemma 2.3) for the steady soliton following closely the ideas of Robinson [3] . Then, by using this divergence formula, we will improve Theorem 1.1.

Also in this presentation, we study a new results in Shrinking (Expanding) Ricci solitons. We use a D-tensor and through a magical divergence formula inspired by [3] we find solitons Ricci-Einstein, or with constant scalar curvature.

References

[1] Simon Brendle. Uniqueness of gradient Ricci solitons. *Math. Res. Lett.*, 18(3):531–538, 2011.

[2] Benedito Leandro Neto and Keti Tenenblat. On gradient Yamabe solitons conformal to a pseudo-Euclidian space. *J. Geom. Phys.*, 123:284–291, 2018.

[3] D. C Robinson. A simple proof of the generalization of israel's theorem. *General Relativity and Gravitation*, 8(8):695–698, 1977.