

# Some Compactness Theorems for Transverse Ricci Solitons on Complete Sasaki Manifolds

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January 14, 2019

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## Abstract

The aim of this talk is to discuss the compactness of complete Ricci solitons. Ricci solitons were introduced by R. Hamilton in 1982 and are natural generalizations of Einstein manifolds. They correspond to self-similar solutions to the Ricci flow and often arise as singularity models of the flow. The importance of Ricci solitons was demonstrated by G. Perelman, where they played crucial roles in his affirmative resolution of the Poincaré conjecture.

In this talk, after we review basic facts on Ricci solitons, I would like to give some new compactness theorems for complete Ricci solitons. Our results generalize the compactness theorems due to W. Ambrose (1957), J. Cheeger, M. Gromov, and M. Taylor (1982), M. Fernández-López and E. García-Río (2008), M. Limoncu (2010, 2012), Z. Qian (1997), Y. Soyulu (2017), G. Wei and W. Wylie (2009), and S. Zhang (2014). Moreover, I would also like to extend such compactness theorems for complete Ricci solitons to the case of transverse Ricci solitons on complete Sasaki manifolds.