1052-53-16   **J. T. Cho**, CNU The Institute of Basic Sciences, Gwangju 500-757, South Korea, and **Ramesh Sharma*** (`rsharma@newhaven.edu`), 300 Boston Post Rd., West Haven, CT 06516. *Contact Metrics And Ricci Solitons.*

Assuming that the Ricci curvature of the standard contact metric of the unit tangent bundle of a manifold vanishes along the Reeb vector field, we show that the scalar curvature of the base manifold M is non-negative and vanishes if and only if M is flat. Under the same hypothesis, for $dim.M = 2$, we show that M is either flat, or has constant curvature 2. Next we show that a compact contact Ricci soliton with a potential vector field V collinear with the Reeb vector field, is Einstein. We also show that a homogeneous H-contact gradient Ricci soliton is either Ricci-flat or locally isometric to $E^{n+1} \times S^n(4)$. Finally we obtain conditions so that the horizontal and tangential lifts of a vector field on the base manifold may be potential vector fields of a Ricci soliton on the unit tangent bundle. (Received May 20, 2009)

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