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John B. Etnyre* (etnyre@math.gatech.edu), School of Mathematics, 686 Cherry Street, Georgia Institute of Technology, Atlanta, GA 30332, **Rafal Komendarczyk**, LA , and **Patrick Massot**, , France. *The Contact Sphere Theorem and Tightness in Contact Metric Manifolds.*

We establish an analog of the sphere theorem in the setting of contact geometry. Specifically, if a given three dimensional contact manifold admits a compatible Riemannian metric of positive $4/9$ -pinched curvature then the underlying contact structure is tight. The proof is a blend of topological and geometric techniques. A necessary technical result is a lower bound for the radius of a tight ball in a contact, not necessarily closed, 3-manifold. We will also discuss geometric conditions in dimension three for a contact structure to be universally tight in the nonpositive curvature setting. (Received January 17, 2011)