

Contact forms with large systolic ratio in dimension three

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Abstract. The systolic ratio of a contact form on a closed three-manifold is the quotient of the square of the shortest period of closed Reeb orbits by the contact volume. We show that every co-orientable contact structure on any closed three-manifold is defined by a contact form with arbitrarily large systolic ratio. This shows that the many existing systolic inequalities in Finsler and Riemannian geometry are not purely contact-topological phenomena.

Mathematics Subject Classification (2010): 53D10 (primary); 37J05 (secondary).