

SYSTOLIC INEQUALITIES AND THE HOROWITZ-MYERS CONJECTURE

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Let n be an integer with $3 \leq n \leq 7$, and let g be a Riemannian metric on $B^2 \times T^{n-2}$ with scalar curvature at least $-n(n-1)$. We establish an inequality relating the systole of the boundary to the infimum of the mean curvature on the boundary. As a consequence, we obtain a new positive energy theorem where equality holds for the Horowitz-Myers metrics. This is joint work with Pei-Ken Hung.