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Mass-capacity inequalities for conformally flat manifolds with boundary

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In this paper we prove a mass-capacity inequality and a volumetric Penrose inequality for conformally flat manifolds, in arbitrary dimensions. As a by-product of the proofs, capacity and Aleksandrov-Fenchel inequalities for mean-convex Euclidean domains are obtained. For each inequality, the case of equality is characterized.

Comments: 15 pages; v2: Euclidean statements strengthened

Subjects: **Differential Geometry (math.DG)**; General Relativity and Quantum Cosmology (gr-qc); Analysis of PDEs (math.AP)

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