

On Busemann-Hausdorff densities of dimension two and of codimension two, with an application to the Plateau problem

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Abstract. The purpose of this paper is twofold. First, we describe one (presumably) new case in which Busemann-Hausdorff densities are convex. We apply the corresponding result to prove the existence of minimizing rectifiable chains of codimension two in complex finite-dimensional normed vector spaces. Second, we prove that for each $n \geq 4$, there exists an n -dimensional normed vector space in which the corresponding two-dimensional Busemann-Hausdorff density is not totally convex. This gives a negative answer to a question posed by H. Busemann and E. Strauss.

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