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Mokshay Madiman and **James Melbourne*** (jamesm@udel.edu), 501 Ewing Hall, Newark, DE 19716, and **Peng Xu**. *Min-entropy power inequalities, bounds on marginal densities of product measures, and a theorem of Rogozin.*

Extensions of an inequality due to Rogozin for the essential supremum of a convolution of k probability density functions on the real line are considered. A weakened version of the theorem is put forth in the context of arbitrary unimodular locally compact groups when $k = 2$. On \mathbb{R}^d the result can be combined with rearrangement inequalities for arbitrary k to recover a full generalization. As a consequence, we obtain an inequality for the Renyi entropy of order infinity for sums of independent random vectors, providing an asymptotically sharp refinement of an inequality of Bobkov and Chistyakov. The proof is elementary and relies on a characterization of extreme points of a class of probability measures in the general setting of Polish measure spaces. As other applications, we generalize bounds on marginal densities achieved by Livshyts-Paouris-Pivovarov and Rudelson-Vershynin. (Received August 29, 2016)