Transportation Proofs of Rényi Entropy Power Inequalities — Olivier Rioul

Abstract

A comprehensive framework for deriving Rényi entropy-power inequalities is presented that uses transportation arguments from normal densities and a change of variable by rotation. Simple arguments are given to recover the previously known Rényi EPIs and derive new ones, by unifying a multiplicative form with constant c and a modification with exponent α of previous works. For log-concave densities, a simple transportation proof of a sharp varentropy bound is presented.