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From affine to two-source extractors via approximate duality

Two-source and affine extractors and dispersers are fundamental objects studied in the context of derandomization. (Two-source dispersers are equivalent to bipartite Ramsey graphs.) We show how to construct two-source extractors and dispersers (i.e., bipartite Ramsey graphs) for arbitrarily small min-entropy rate in a black-box manner from affine extractors with sufficiently good parameters. Our analysis relies on the study of approximate duality, a concept related to the polynomial Freiman-Ruzsa conjecture from additive combinatorics.

(Joint work with Noga Zewi).