



Base Modulus for Matroid Truncation, Strength, and Fractional Arboricity

Huy Truong,
Kansas State University

In previous work, we studied the ρ -modulus of the family of all bases of a matroid and showed that it recovers several classical concepts in matroid theory, including strength, fractional arboricity, and principal partitions. These results generalize corresponding concepts for spanning trees in graphs. Due to computational constraints, one may impose a bound on the number of elements sampled from a base. For instance, when exploring a tree, we may stop at forests with edges. Such objects are captured by matroid truncations. In this paper, we study the modulus of matroid truncations and determine the universal density for every truncation of a given matroid. As a consequence, we show that the truncation modulus serves as an approximation of the original matroid modulus.
