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Justin Chen*, jchen646@math.gatech.edu. *Homological theory of functions: applying commutative algebra to complexity theory.*

Let C be a class of binary functions on n bits, i.e. a subset of $[2^n \rightarrow 2]$. In "A Homological Theory of Functions", Yang introduced a natural way to associate a simplicial complex to the class C . The Stanley-Reisner correspondence then provides an algebraic approach to understanding the original function class C . We sketch some applications to complexity theory which demonstrates the utility of this approach. This is joint work in progress with Greg Yang. (Received January 23, 2019)