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Hyper-cyclotomic Algebra

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Abstract Two new operators imposed on the set of cyclotomic cosets modulo $p^n - 1$ and their algebraic structure are discussed. These two new operators can be performed on the cyclotomic algebra in a field. The resulting algebraic structure is called a *hyper cyclotomic algebra*. It is shown that there exist distributive laws which connect these new operators to the ordinary operations of a field. An application of this new algebraic system to cyclic invariant sequences is provided.