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**Title:** Bounds on the number of ideals in finite commutative nilpotent  $\mathbb{F}_p$ -algebras

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Let A be a finite commutative nilpotent  $\mathbb{F}_p$ -algebra structure on G, an elementary abelian group of order  $p^n$ . If K/k is a Galois extension of fields with Galois group G and  $A^p = 0$ , then corresponding to A is an H-Hopf Galois structure on K/k of type G. For that Hopf Galois structure we may study the image of the Galois correspondence from k-subHopf algebras of H to subfields of K containing k by utilizing the fact that the intermediate subfields correspond to the  $\mathbb{F}_p$ -subspaces of A, while the subHopf algebras of H correspond to the ideals of A. We obtain upper and lower bounds on the proportion of subspaces of A that are ideals of A, and test the bounds on some examples.

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