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INDUCED HOPF GALOIS STRUCTURES AND THEIR LOCAL HOPF GALOIS MODULES

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Abstract: The regular subgroup determining an induced Hopf Galois structure for a Galois extension L/K is obtained as the direct product of the corresponding regular groups of the inducing subextensions. We describe here the associated Hopf algebra and Hopf action of an induced structure and we prove that they are obtained by tensoring the corresponding inducing objects. In order to deal with their associated orders we develop a general method to compute bases and free generators in terms of matrices coming from representation theory of Hopf modules. In the case of an induced Hopf Galois structure this allows us to decompose the associated order, assuming that inducing subextensions are arithmetically disjoint.

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