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On Hibi Rings

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Let K be a field. Attached to a finite distributive lattice L is a K-algebra $K[L]$ which is called the Hibi ring of L. This K-algebra was introduced by Hibi in 1987. We introduce pseudo-Gorenstein rings and characterize those Hibi rings attached to a finite distributive lattice L which are pseudo-Gorenstein in terms of the poset of join-irreducible elements of L. We also study level property, and present a necessary condition for Hibi rings to be level. In particular, we focus on some special types of lattices like planar and hyper-planar lattices. This talk is based on a joint work with V. Ene, J. Herzog and T. Hibi.