

On a problem of Hasse for certain imaginary Abelian fields

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Abstract. Concerning Hasse's problem on an integral power basis, first, we consider a subfield K in a cyclotomic field k_m of conductor m such that $[k_m : K] = 2$. Then the theme is to know whether the ring of integers in K has a power basis or does not. Second, let K be the composite field of an imaginary quadratic field and a certain disjoint real abelian field distinct from the rationals. Then we construct new families of infinitely many fields K with the non-monogenic phenomena and with monogenic ones (joint work with S. I. A. Shah and Y. Motoda, to appear in Nagoya Math. J. and in JNT). They are related to works of Dummit-Kisilevsky (1977), M.-N. Gras (1984), Huad-Spearman-K. Williams (1995) and L. Robertson (1998).

