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Correction to the paper

A hyperelliptic diophantine equation related to imaginary quadratic number fields with class number 2

(J. reine angew. Math. **427** (1992), 137–156)

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In my paper [dW], recently published in this journal, there appears to be an error in the arguments leading to the upper bound (36) for B, namely in the lower bound for linear forms in logarithms of algebraic numbers, given in the Theorem of [TW], Appendix 3, which is a reformulation of [BGMMS], Corollary 2. In this latter result an unfortunate misprint occurs, namely the omission of a rather substantial n^{2n+1} from the lower bound for $|\Lambda|$. This was pointed out to me recently by professor A. Baker, and then confirmed by the authors of [BGMMS].

It will be clear that a larger upper bound for B can be derived from the corrected result of [BGMMS], in fact, I computed $B < 2.4604 \times 10^{26}$. The method of Section 3.4 to find all the solutions below such a bound will certainly work for this larger upper bound too, but then new computations have to be done.

However, it is not necessary to redo the computational part of the paper, since recently A. Baker and G. Wüstholz proved in [BW] a lower bound for linear forms in logarithms of algebraic numbers which is substantially sharper than that of [BGMMS]. Using this new result I computed $B < B_0 = 5.4670 \times 10^{21}$, which is only slightly worse than (36). Using this B_0 in (37), with again $C = 10^{96}$ and thus $|\mathbf{b}_1| > 5.1249 \times 10^{23}$, the result of the first reduction step is again $B \leqq B_1 = 243$. Thus this fixes the error.

More details on the computation of the new bound for B will be published in my paper [dW 2], which will moreover contain a generalization of Theorem 3 of [dW], namely the determination of the complete set of solutions of [dW], (18) not only in $\mathbb{Z}$, but in a certain subset of $\mathbb{Q}(\sqrt{13})$ containing its ring of integers.

References

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