We tested on several examples the efficiency of our algorithm, using Maple 10. We construct the examples in the following way.

We consider random polynomials $g_1 \in \mathbb{Q}[x, y, z]$ monic in y and $g_2 \in \mathbb{Q}[z]$ monic, of degrees d_1 and d_2 resp. We compute $f = Res_z(g_1, g_2)$. In this way we obtain an irreducible polynomial $f \in \mathbb{Q}[x, y]$, monic in y, of degree $d_1 \cdot d_2$ with d_2 absolute irreducible factors each of degree d_1.

The polynomials g_1 and g_2 used are listed in the file "ExamplesData.mws".

Here we summarize the time needed to obtain $q(Z)$, the minimal rational polynomial of α, such that the absolute factors of f are in $\mathbb{K}[x, y]$, $\mathbb{K} = \mathbb{Q}(\alpha) = \mathbb{Q}[Z]/q(Z)$.

Example 1. *f rational irreducible polynomial of degree 60 with 6 absolute factors of degree 10.*
We choose $p = 269$.

- *Time to factor* $f mod\, p$*:* 0.210 *sec.*
- *Time to lift the factorization* $f(0, Y) = g_1(0, Y)g_2(0, Y) mod\, p$ *to a factorization mod* p^{256}*, using Quadratic Hensel Lifting:* 4.020 *sec.*
- *Time to find the minimal polynomial of* α *through its approximation mod* p^{256} *using LLL:* 0.981 *sec.*

Example 2. *f rational irreducible polynomial of degree 120 with 6 absolute factors of degree 20.*
We choose $p = 65479$.

- *Time to factor* $f mod\, p$*:* 15.260 *sec.*
- *Time to lift the factorization* $f(0, Y) = g_1(0, Y)g_2(0, Y) mod\, p$ *to a factorization mod* p^{128}*, using Quadratic Hensel Lifting:* 31.919 *sec.*
- *Time to find the minimal polynomial of* α *through its approximation mod* p^{128} *using LLL:* 0.960 *sec.*

Example 3. *f rational irreducible polynomial of degree 200 with 10 absolute factors of degree 20.*
We choose $p = 103$.

- *Time to factor* $f mod\, p$*:* 6.891 *sec.*
- *Time to lift the factorization* $f(0, Y) = g_1(0, Y)g_2(0, Y) mod\, p$ *to a factorization mod* p^{256}*, using Quadratic Hensel Lifting:* 129.649 *sec.*
- *Time to find the minimal polynomial of* α *through its approximation mod* p^{256} *using LLL:* 2.970 *sec.*

Example 4. *f rational irreducible polynomial of degree 300 with 10 absolute factors of degree 30.*
We choose $p = 1201$.

- *Time to factor* $f mod\, p$*:* 37.260 *sec.*

- *Time to lift the factorization* $f(0,Y) = g_1(0,Y)g_2(0,Y) \bmod p$ *to a factorization mod* p^{256}*, using Quadratic Hensel Lifting:* 807.830 *sec.*

- *Time to find the minimal polynomial of* α *through its approximation* $\bmod p^{256}$ *using LLL:* 7.059 *sec.*

Example 5. *f rational irreducible polynomial of degree 400 with 10 absolute factors of degree 40.*

We choose $p = 131$.

- *Time to factor* $f \bmod p$*:* 84.621 *sec.*

- *Time to lift the factorization* $f(0,Y) = g_1(0,Y)g_2(0,Y) \bmod p$ *to a factorization mod* p^{512}*, using Quadratic Hensel Lifting:* 3086.65 *sec.*

- *Time to find the minimal polynomial of* α *through its approximation* $\bmod p^{512}$ *using LLL:* 18.06 *sec.*

Example 6. *f rational irreducible polynomial of degree 150 with 15 absolute factors of degree 10.*

We choose $p = 19$.

- *Time to factor* $f \bmod p$*:* 2.140 *sec.*

- *Time to lift the factorization* $f(0,Y) = g_1(0,Y)g_2(0,Y) \bmod p$ *to a factorization mod* p^{512}*, using Quadratic Hensel Lifting:* 73.521 *sec.*

- *Time to find the minimal polynomial of* α *through its approximation* $\bmod p^{512}$ *using LLL:* 9.739 *sec.*