

# A correction of my result on the estimation of roots from a field of fractional–power series of a polynomial in nonzero characteristic

Alexander L. Chistov

St. Petersburg Department of Steklov Mathematical Institute  
of the Academy of Sciences of Russia  
Fontanka 27, St. Petersburg 191023, Russia,  
e-mail: [alch@pdmi.ras.ru](mailto:alch@pdmi.ras.ru)

2023

We have the following correction. In the statements of Theorem of [1] and the similar Theorem 1 of [2] one must replace  $\delta^i$  by  $\delta^{\max\{1,i\}}$ . Hence there the correct version of the formula for  $u$  is

$$u = \sum_{i \geq 0} \sum_{0 \leq j < \deg_Z \Phi} u_{i,j} \eta^j X^{i/\nu} / \delta^{\max\{1,i\}},$$

The proof of these theorems given in [2] is corrected as follows. On page 72 of [2] (respectively page 544 of the English translation of [2]) one must replace the formula “ $y_{\alpha,i} = \eta_{\alpha,i}$ ” by “ $y_{\alpha,i} = \eta_{\alpha,i+1}$ ”. On page 73 of [2] (respectively page 544 of the English translation of [2]) one must replace the formula “ $y_{\alpha,i} = \sum_{0 \leq j < d_\alpha} R_{\alpha,i,j} \eta_\alpha^j / R_\alpha^i$ ” by “ $y_{\alpha,i} = \sum_{0 \leq j < d_\alpha} R_{\alpha,i,j} \eta_\alpha^j / R_\alpha^{\max\{1,i\}}$ ”.

We have found also two misprints. In [1], [2] in the statement of the theorem one must replace “ $\deg_Y \Phi$ ” by “ $\deg_Z \Phi$ ”. In [2] in the proof of the theorem one must replace “ $f = \prod_{\alpha \in A} f_\alpha$ ” by “ $\prod_{\alpha \in A} f_\alpha$  divides  $f$ ”.

## References

- [1] **Chistov A. L.:** “*On the Estimation of Coefficients of Irreducible Factors of Polynomials over a Field of Formal Power Series in Nonzero Characteristic*”, Doklady Akademii Nauk, 2019, v. 489 No. 3 p. 12–14 (in Russian), [English transl.: Doklady Mathematics, 2019, Vol. 100, No. 3, p. 542–544]
- [2] **Chistov A. L.:** “*Efficient Estimation of Roots from the Field of Fractional Power Series of a Given Polynomial in Nonzero Characteristic*”, Zap. Nauchn. Semin. St-Petersburg Otdel. Mat. Inst. Steklov (POMI) v. 498 (2020) p.64–74 (in Russian), [English transl.: J. of Mathematical Sciences 2021, v.255, p.149–154].