

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 43 (1997)
Heft: 3-4: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: ON CYCLOTOMIC POLYNOMIALS, POWER RESIDUES, AND RECIPROCITY LAWS
Autor: Sharifi, Romyar T.

Bibliographie
DOI: <https://doi.org/10.5169/seals-63283>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. [Siehe Rechtliche Hinweise.](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. [Voir Informations légales.](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. [See Legal notice.](#)

Download PDF: 01.04.2025

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

This method is easily used to deal with the case of $q = 2$, as most of the proof carries over. We leave the proof to the reader. Extending this method, the author has been able to compute the conductors which were used in the first proof of the theorems (for all q) [Sh2].

ACKNOWLEDGMENTS. Hendrik Lenstra was of great help throughout the preparation of this paper. Robby Robson, along with Tom Schmidt, advised me at the 1993 NSF Research Experiences for Undergraduates program at Oregon State. Raghavan Narasimhan made many helpful comments. I thank them, and all those who offered me guidance, wholeheartedly.

REFERENCES

- [AT] ARTIN, E. and J. TATE. *Class Field Theory*. Harvard, 1961.
- [CF] CASSELS, J. W. S. and A. FRÖHLICH, eds. *Algebraic Number Theory*. Academic Press, New York, 1967.
- [CM] COLEMAN, R. and W. MCCALLUM. Stable reduction of Fermat curves and Jacobi sum Hecke characters. *J. Reine Angew. Math.* 385 (1988), 41–101.
- [C] COX, D. *Primes of the Form $x^2 + ny^2$* . John Wiley & Sons, New York, 1989.
- [FV] FESENKO, I. and S. VOSTOKOV. *Local Fields and Their Extensions: A Constructive Approach*. American Mathematical Society, Providence, 1993.
- [H] HASSE, H. *Bericht über neuere Untersuchungen und Probleme aus der Theorie der algebraischen Zahlkörper, Teil II: Reziprozitätsgesetz*. Physica-Verlag, Würzburg, Germany, 1965.
- [IR] IRELAND, K. and M. ROSEN. *A Classical Introduction to Modern Number Theory, 2nd. ed.* Springer-Verlag, New York, 1990.
- [Iw] IWASAWA, K. *Local Class Field Theory*. Oxford University Press, New York, 1986.
- [Iy] IYANAGA, S. *The Theory of Numbers*. American Elsevier Publishing, New York, 1975.
- [La] LANG, S. *Algebraic Number Theory*. Addison-Wesley, Reading, Mass., 1970.
- [N] NEUKIRCH, J. *Class Field Theory*. Springer-Verlag, New York, 1986.
- [P] PRAPAVESSI, D. On the conductor of 2-adic Hilbert norm residue symbols. *J. Algebra* 149 (1992), 85–101.
- [Se] SERRE, J.-P. *Local Fields*. Springer-Verlag, New York, 1979.

- [Sh1] SHARIFI, R. Ramification groups of nonabelian Kummer extensions. *J. Number Theory* 65 (1997), 105–115.
- [Sh2] — On norm residue symbols and conductors. In preparation.

(Reçu le 18 novembre 1997)

Romyar T. SHARIFI

Department of Mathematics
University of Chicago
5734 S. University Ave.
Chicago, IL 60637
U. S. A.
e-mail: sharifi@math.uchicago.edu