

Zeitschrift: L'Enseignement Mathématique
Herausgeber: Commission Internationale de l'Enseignement Mathématique
Band: 30 (1984)
Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: MULTIPLICATIVE INVARIANTS

Autor: Farkas, Daniel R.

Bibliographie

DOI: <https://doi.org/10.5169/seals-53825>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. 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. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

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. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

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. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 19.08.2025

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

MAIN THEOREM. Assume A is a \mathbf{Z} -lattice and $G \subset GL(A)$ is a finite group. Then $\mathbf{C}[A]^G$ is a polynomial ring if and only if G is a reflection group and, for some choice of root system, it becomes a Weyl group with A as its weight lattice.

REFERENCES

- [1] AUSLANDER, L. and G. BAUMSLAG. Automorphism groups of finitely generated nilpotent groups. *Bull. Amer. Math. Soc.* 73 (1967), 716-717.
- [2] BACHMUTH, S., G. BAUMSLAG, J. DYER and H. Y. MOCHIZUKI. Automorphism groups of 2-generator metabelian groups. *Preprint*.
- [3] BERGMAN, G. M. The logarithmic limit-set of an algebraic variety. *Trans. Amer. Math. Soc.* 157 (1971), 459-469.
- [4] BOURBAKI, N. *Groupes et Algèbres de Lie*, IV, V, VI. Hermann, Paris, 1968.
- [5] FARKAS, D. R. The stretched weight lattices of a Weyl group. *Preprint*.
- [6] —— and R. L. SNIDER. Arithmeticity of stabilizers of ideals in group rings. To appear in *Inventiones*.
- [7] FORMANEK, E. Rational function fields—Noether's problem and related questions. *Preprint*.
- [8] HUMPHREYS, J. E. *Introduction to Lie Algebras and Representation Theory*. Grad. Texts in Math. 9 (1972), Springer-Verlag, New York.
- [9] ROSEBLADE, J. E. Group rings of polycyclic groups. *J. Pure Appl. Alg.* 3 (1973), 307-328.
- [10] —— Prime ideals in group rings of polycyclic groups. *Proc. London Math. Soc. (3)* 36 (1978), 385-447.
- [11] SPRINGER, T. A. *Invariant Theory*. Lecture notes in math. #585 (1977), Springer-Verlag, Berlin.

(Reçu le 14 décembre 1983)

Daniel R. Farkas

Virginia Polytechnic Institute
and State University
Blacksburg, VA 24061
USA

NOTE ADDED IN PROOF: As occasionally happens when a mathematician wanders from his area of expertise, he re-invents the wheel. The appendix (§ 4) can be eliminated by invoking a theorem of Serre [B] to the effect that the fixed ring of a suitably nice regular local ring under the action of a finite group is also regular local if and only if the group acts as a pseudo-reflection group on the tangent space of the original local ring. The fifth section is, to a large extent, implicit in work of Steinberg [C]. A statement closer to mine can be found in [A].

- [A] RICHARDSON, R. W. Orbits, invariants and representations. *Invent. math.* 66 (1982), 287-312.
- [B] SERRE, J.-P. Groupes finis d'automorphismes d'anneaux locaux réguliers. *Colloque d'Algèbre Exp. 8*, Ecole Normale Supérieure de Jeunes Filles (1968).
- [C] STEINBERG, R. On a theorem of Pittie. *Topology* 14 (1975), 173-177.

vide-leer-empty