Zeitschrift: L'Enseignement Mathématique
Band: 2 (1956)
Heft: 1-2: L'ENSEIGNEMENT MATHÉMATIQUE

Artikel: SOME PROBLEMS ON FINITE REFLECTION GROUPS
Bibliographie

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DOI: https://doi.org/10.5169/seals-32890

minors of the functional matrix $\partial I_i / \partial x_j$ This conjecture has neither been proved or verified.

(vi) This final property is the only one that holds for *irreducible* groups only. Suppose that r reflections in W serve to generate W (this is always the case for $k = R$, but not for $k = C$). Then it is possible to pick this set of generating reflections so that their product has characteristic roots

$$\exp\left(\frac{2 \pi i m_j}{h}\right), j = 1, 2, \ldots, r; h = \max(m_j) + 1$$

When $k = R$ it suffices to choose the reflections as those of a fundamental set and then take their product in any order [6; p. 765]. In this case also h has geometric significance as the number of sides of the Petrie polygon [5; p. 223]. For $k = C$ no general rule for the selection of the correct set of reflections has been given.

This result has been verified for $k = C$, and general proofs are known for $k = R$, $r = 2, 3$ [6; p. 772].

REFERENCES

1. Borel, Sur la cohomologie des espaces fibres principaux et des espaces homogènes de groupes de Lie compacts. *Annals of Math.*, 57 (1953), pp. 115-207.
2. Bott, On torsion in Lie groups. *Proc. Nat. Academy of Sciences U.S.A.*, 40 (1954), pp. 586-588.
3. Burnside, *Theory of Groups* (Cambridge, 1911).
4. Chevalley, Invariants of Finite Groups generated by Reflexions. *American J. of Math.*, 77 (1955), pp. 778-782.
5. Coxeter, *Regular Polytopes* (London, 1948, New York, 1949).
6. —— The product of the generators of a group generated by reflections. *Duke Math. J.*, 18 (1951), pp. 765-782.
7. Hopf, Über die Topologie der Gruppen-Mannigfaltigkeiten und ihre Verallgemeinerungen. *Annals of Math.* (2), 42 (1941), pp. 22-52.
8. Shephard, Unitary groups generated by reflections. *Can. J. of Math.*, 5 (1953), pp. 364-383.
9. —— and Todd, Finite unitary reflection groups. *Can. J. of Math.*, 6 (1954), pp. 274-304.
10. Stiefel, Über eine Beziehung zwischen geschlossenen Lie'schen Gruppen und diskontinuierlichen Bewegungsgruppen, etc. *Comm. Math. Helv.*, 14 (1941), pp. 350-380.