

## Possible Essay Subjects ECiAG 2023/4

Comparison of slice theorem for actions of compact groups in topology with the Luna slice theorem in algebraic geometry. [B] Section II.5, [D]

Torus localization for generalized cohomology theories [tD]

Todd genus of toric varieties [BV]

A proof of Borel-Bott-Weil character formula via equivariant cohomology [FH, section 24-25]

Mathai-Quillen twist [MQ]

Moment polytopes for homogeneous varieties, the compact quotients of  $SO(5)$  and  $Sp(3)$

Equivariant Schubert calculus: basic identities and examples. [KT]

Chang-Skjelbred Lemma. [F]

Equivariant K-theory [S]

Equivariant Chow groups [EG]

Convexity of the Moment Polytope [A]

Quotients and Kirwan Surjectivity [MFK] Ch.8

[A] Atiyah, M. F. Convexity and commuting Hamiltonians.  
Bull. London Math. Soc.14(1982), no.1, 1–15.

[B] G. Bredon, Introduction to Compact Transformation Groups. Academic Press 1972.

[BV] M. Brion, M. Vergne, An equivariant Riemann-Roch theorem for complete, simplicial toric varieties.  
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[D] Jean-Marc Drézet, Luna's slice theorem and applications,  
<https://hal.science/hal-00742479/document>

[EG] Edidin, Dan; Graham, William, Localization in equivariant intersection theory and the Bott residue formula  
Amer. J. Math. 120 (1998), no. 3, 619-636.

[Fr] Matthias Franz,  
The Chang–Skjelbred Lemma And Generalizations, <https://arxiv.org/pdf/2306.05165.pdf>

[FH] Fulton, William; Harris, Joe;  
Representation theory  
Grad. Texts in Math., 129

[KT] Knutson, Allen; Tao, Terence; Puzzles and (equivariant) cohomology of Grassmannians  
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[MQ] Mathai, Varghese; Quillen, Daniel;  
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[S] Segal, Graeme;  
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