Graduate

Integrating over Schubert Cells

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Abstract. In this talk we study some geometrical aspects of the maximal flag manifold of $\mathfrak{sl}_n(\mathbb{C})$. From the point of view of the Chern-Weil theory, we take a closer look at the cellular structure given by the Schubert cells. We recall some basic definitions and main theorems involved, mainly the Chern-Weil homomorphism. Then we give a nice geometric description of the Schubert cells using sphere fibrations (see [3]). To each Schubert cell, we present an invariant measure (induced by a Chern-Weil form) and show a formula relating the integral of the cell and the invariant polynomial associated to it.

References

[1] Bernstein, I.N., Gelfand, I.M. and Gelfand, S.I., Schubert Cells and Cohomology of the Spaces G/P. Russian Math. Surveys 28 (1973), 1-26.

[2] Kobayashi and Nomizu: Foundations of Differential Geometry.

[3] L. Rabelo and L. A. B. San Martin: Cellular Homology of Real Flag Manifolds.