Dynamics and Lie Theory Seminar

Combinatorics on the Symmetric Group and Topology of Real Flag Manifolds of Type A

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In this talk, we will present techniques on the combinatorics of the symmetric group to enlighten a few topological results about the real flag manifolds of type A. We will consider how it provides a new approach to prove the criteria for its orientability according to Patrão-San Martin-Santos-Seco [2]. Furthermore, we obtain a closed formula for the first and second homology groups exhibiting its generators fulfilling the description of del Barco-San Martin [3]. It is a joint work with Jordan Lambert [1].

References

[1] J. Lambert, L. Rabelo, A Correspondence Between Boundary Coefficients of Real Flag Manifolds and Height of Roots, Journal of Lie Theory 32, No. 2, 431–446, 2022.

[2] M. Patrão, L. A. B. San Martin, L. J. dos Santos, L. Seco, Orientability of vector bundles over Real flag manifolds, Topol. Its Appl., 159 (10-11), 2774–2786, 2012.

[3] V. del Barco, L.A.B. San Martin, De Rham 2-Cohomology of Real Flag Manifolds, SIGMA, vol. 15, 2019.