
HOW MANY SIMPLICES ARE NEEDED TO TRIANGULATE A GRASSMANNIAN?

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(joint work with **Dejan Govc** and **Wacław Marczantowicz**)

We will explain how R. Stong's [3] determination of non-trivial products in the cohomology of Grassmann manifolds and the Lower Bound Theorem of G. Kalai [2] can be combined with some recent results on the covering type of manifolds by the authors [1] to obtain a lower bound for the number of vertices and of top dimensional simplices in a triangulation of the Grassmann manifold of k -dimensional subspaces of \mathbb{R}^n .

References

- [1] D. Govc, W. Marzantowicz and P. Pavešić, *Estimates of covering type and the number of vertices of minimal triangulations*, *Discr. Comp. Geom.* (2019), <https://doi.org/10.1007/s00454-019-00092-z>.
- [2] G. Kalai, *Rigidity and the lower bound theorem 1*, *Invent. Math.* **88** (1987), 125–151.
- [3] R. Stong, *Cup products in Grassmannians*, *Top. Appl.* **13** (1982), 103-113.