
Bounds on Betti numbers for real hypersurfaces obtained by non-primitive patchworking and partial Poincaré duality

Samuel Dentan^{*1}

¹Laboratoire Paul-Painlevé – MADIS, Université de Lille - Sciences et Technologies – France

Résumé

Viro's combinatorial patchworking is a powerful method to construct real algebraic hypersurfaces of real toric varieties with a control on their topology. It is one of the most efficient known methods of construction, thus the study of the topological spaces obtained by combinatorial patchworking has become a field of research in itself.

We present a generalization of the work of Renaudineau and Shaw, which establishes bounds on the Betti numbers of primitive patchworkings, extending it to the almost-primitive case. To this end, we explain how Poincaré duality in tropical homology partially extends to non-primitive tropical hypersurfaces.

^{*}Intervenant