SIMPLICIAL MANIFOLDS, BISTELLAR FLIPS AND A 16-VERTEX TRIANGULATION OF THE POINCARÉ HOMOLOGY 3-SPHERE

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Abstract. We present a computer program based on bistellar operations that provides a useful tool for the construction of simplicial manifolds with few vertices. As an example, we obtain a 16-vertex triangulation of the Poincaré homology 3-sphere; we construct an infinite series of non-PL d-dimensional spheres with $d+13$ vertices for $d \geq 5$; and we show that if a d-manifold, with $d \geq 5$, admits any triangulation on n vertices, it admits a noncombinatorial triangulation on $n+12$ vertices.