

# Topology of real coordinate arrangements

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## **Abstract**

We prove that if a simplicial complex  $\Delta$  is (nonpure) shellable, then the intersection lattice for the corresponding real coordinate subspace arrangement  $\mathcal{A}_\Delta$  is homotopy equivalent to the link of the intersection of all facets of  $\Delta$ . As a consequence, we show that the singularity link of  $\mathcal{A}_\Delta$  is homotopy equivalent to a wedge of spheres. We also show that the complement of  $\mathcal{A}_\Delta$  is homotopy equivalent to a wedge of spheres when  $\Delta$  is pure and shellable.

**Keywords:** simplicial complex, shellable