One possible way to unfold the boundary of a convex three–polytope into the plane is the so-called source unfolding [see, e.g., M. Sharir and A. Schorr, SIAM J. Comput. 15 (1986), no. 1, 193–215; MR0822201 (87b:68101)]. In the present paper an algorithm is given which generalizes this method to any dimension. The method is based on a characterization of the cut locus (the closure of the set of points with more than one shortest path to a special point, the source point \( v \)) and an analysis of the infinitesimal expansion of the wavefront consisting of points at constant distance from \( v \). In this way it is shown that the boundary of any convex polytope of dimension \( d+1 \) has a polyhedral nonoverlapping unfolding into \( \mathbb{R}^d \). Furthermore, the results are extended to convex polyhedral pseudomanifolds.

Reviewed by Uwe Schnell

References


Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.

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