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The Kneser-Poulsen conjecture for uniform contractions

The Kneser-Poulsen Conjecture (1955) states that if the centers of a family of N unit balls in $\mathbb{E}^d$ is contracted, then the volume of the union (resp., intersection) does not increase (resp., decrease). We consider the following special contractions. A uniform contraction is a contraction where all the pairwise distances in the first set of centers are larger than all the pairwise distances in the second set of centers. We prove that a uniform contraction of the centers does not decrease the volume of the intersection of the balls, provided that $N \geq (1+\sqrt{2})^d$. Our result extends to intrinsic volumes. We prove a similar result concerning the volume of the union. This is a joint work with M. Naszodi (Eotvos Univ., Budapest, Hungary).