

---

**KÁROLY BEZDEK**, University of Calgary

*The Kneser-Poulsen conjecture for uniform contractions revisited*

The Kneser-Poulsen conjecture (1955) states that if a finite set of (not necessarily congruent) balls in the Euclidean  $d$ -space is rearranged so that the distance between each pair of centers does not increase, then the area of the union does not increase, and the area of the intersection does not decrease. This was proved for  $d = 2$  by K. Bezdek and R. Connelly in 2002. The Kneser-Poulsen conjecture is still open for all  $d > 2$ . Consider the following special case. Take finitely many congruent balls in the Euclidean  $d$ -space and reposition them (without changing their radius) by applying a uniform contraction to their centers. Here a uniform contraction maps the first set of centers onto the second set of centers such that the pairwise distances in the first set of centers are larger than or equal to all pairwise distances in the second set of centers. The lecture surveys the progress towards a proof of the Kneser-Poulsen conjecture for uniform contractions of congruent balls.