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Karoly Bezdek* (kbezdek@ucalgary.ca), Dept. of Math. and Stats., 2500 University Drive
NW, Calgary, Alberta T2N1N4, Canada. *Volumetric bounds for intersections of congruent balls.*

We investigate the intersections of balls of radius r , called r -ball bodies, in Euclidean d -space. An r -lense (resp., r -spindle) is the intersection of two balls of radius r (resp., balls of radius r containing a given pair of points). We prove that among r -ball bodies of given volume, the r -lense (resp., r -spindle) has the smallest inradius (resp., largest circumradius). In general, we upper (resp., lower) bound the intrinsic volumes of r -ball bodies of given inradius (resp., circumradius). This complements and extends some earlier results on volumetric estimates for r -ball bodies. (Received January 14, 2020)