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On totally separable packings of soft balls

A packing of balls in Euclidean d -space is said to be totally separable if any two packing elements can be separated by a hyperplane disjoint from the interior of every packing element. This notion was introduced by G. Fejes Toth and L. Fejes Toth (1973) and has attracted significant attention. In this talk first, I prove that the convex hull of N unit balls forming a totally separable packing in Euclidean d -space for $d=2, 3$ is minimal if and only if the convex hull of the centers is a line segment of length $2(N-1)$. Second, I extend this result to totally separable packings of N congruent soft balls in Euclidean d -space for $d=2, 3$.