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Karoly Bezdek* (kbezdek@ucalgary.ca). *From the separable Tammes problem to extremal distributions of greatcircles in the unit sphere.*

A family of spherical caps of the 2-dimensional unit sphere \mathbb{S}^2 is called a totally separable packing in short, a TS-packing if any two spherical caps can be separated by a greatcircle such that it is disjoint from the interior of each spherical cap in the packing. The separable Tammes problem is to find the largest density of given number of congruent spherical caps forming a TS-packing in \mathbb{S}^2 . We solve this problem up to 8 spherical caps and upper bound the density of any TS-packing of congruent spherical caps in terms of their angular radius. Furthermore, we prove bounds for the maximum of the smallest inradius of the cells of the tilings generated by $n > 1$ greatcircles in \mathbb{S}^2 . Next, we prove dual bounds for TS-coverings of \mathbb{S}^2 by congruent spherical caps. Here a covering of \mathbb{S}^2 by spherical caps is called a totally separable covering in short, a TS-covering if there exists a tiling generated by finitely many greatcircles of \mathbb{S}^2 such that each cell of the tiling is covered by a spherical cap of the covering. Finally, we extend some of our bounds on TS-coverings to spherical spaces of dimension > 2 . This is a joint work with Zs. Langi (Tech. Univ., Budapest). (Received January 22, 2022)