Plane Packing

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How should you place 18 planes through the origin in Euclidean 4-space so that they are as far apart as possible? More generally, how do you place N points on the Grassmann manifold $G(m, n)$ so they are well separated? Ron Hardin, John Conway and I were the first to study these problems, in the mid 1990's. Since then there have been many further developments. I will discuss constructions, bounds, open problems, and applications in medicine, statistics, quantum error-correction and wireless communications.