1125-52-657 **Yoav Kallus*** (yoav@santafe.edu), Santa Fe Institute, 1399 Hyde Park Rd, Santa Fe, NM 87501. *Pessimal packing shapes.*

Stanislaw Ulam reportedly conjectured that spheres are the worst case for the optimal packing density among convex solids. The conjecture is curious because the same doesn't happen in 2D. I show that spheres are a local minimum of the optimal packing density among convex, centrally-symmetric shapes. Similar techniques also show that higher dimensional spheres are not local minima, that regular heptagons are a local minimum in 2D, and that the sphere is a local maximum for the optimal covering density. (Received September 08, 2016)