1151-57-89 **David Futer*** (dfuter@temple.edu), Mathematics Department, Wachman Hall Suite 638, 1805 North Broad St., Philadelphia, PA 19122, and **Jessica S. Purcell** and **Saul Schleimer**. *Systoles and cosmetic surgeries.*

A pair of distinct slopes for a knot K is called *a cosmetic surgery pair* if the Dehn surgeries along those slopes yield the same oriented 3–manifold. Gordon conjectured that such pairs do not exist.

I will describe a theorem that says any potential cosmetic surgery pairs on a hyperbolic knot K belong to a finite list of slopes, whose size is determined by the *systole* (shortest closed geodesic) in the complement of K. For a typical knot, this list has no more than 10 pairs of slopes. This makes it feasible to check the remaining pairs by computer and prove that K has no cosmetic surgeries at all. We have done this for all prime knots up to 15 crossings. (Received August 09, 2019)