1158-57-231 **David Futer*** (dfuter@temple.edu), Mathematics Department, 1805 North Broad St., Suite 638, Philadelphia, PA 19122, and **Jessica S. Purcell** and **Saul Schleimer**. *Systoles and cosmetic surgeries.*

A pair of distinct slopes for a cusped hyperbolic manifold M is called a *cosmetic surgery pair* if the Dehn fillings 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 manifold M belong to a finite list of slopes, whose size is determined by the *systole* (shortest closed geodesic) of M. If M is a knot complement in S^3, the result is particularly simple and there are typically no more than 10 pairs of slopes on the list. If M is a general cusped manifold, the list of slopes is larger but still tractable.

Using this result, we have checked the cosmetic surgery conjecture for the enumerated knots and the manifolds in the SnapPy census. I will describe the verification algorithm that results from the above theorem. (Received March 02, 2020)