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)