A nontrivial Dehn surgery on a knot or link in a 3-manifold $M$ which again yields $M$ is called a cosmetic surgery. Gordon and Luecke demonstrated that knots in $S^3$ are determined by their complements, and thus knots in $S^3$ have no cosmetic surgeries. In contrast, there are infinitely many two component links in $S^3$ which admit cosmetic surgeries. In this talk, we classify all tunnel number one links in $S^3$ admitting a cosmetic surgery with integral surgery slope. (Received February 23, 2015)