1154-53-1729 **Nicholas D Brubaker*** (nbrubaker@fullerton.edu), Department of Mathematics, California State University, Fullerton, 154 McCarthy Hall, Fullerton, CA 92834. *Instabilities and bifurcations of minimal surfaces.*

A classical result, extending Bernstein's theorem for graphs, states that stable complete minimal surfaces in $\mathbf{R}^3$ must be planar. Thus, for every nonplanar complete minimal surface, there exists a compact subdomain and a boundary preserving variation over that subdomain that reduces the value of the area functional. Embedded in this result is the requirement that the area of the subdomain must be sufficiently large, otherwise the surface patch will be approximately planar and, thus, locally area-minimizing. This small/large subdomain dichotomy exists for all smooth nonplanar minimal surfaces and induces a change in the index of the surface. Index changes produce, among other results, bifurcations where multiple minimal surfaces with the same boundary appear. In this talk, we review results on index changes in some classical minimal surfaces and then discuss a few specific examples, from work with T. Murphy and K.O. Negron, that extend such results. (Received September 17, 2019)