Unlike for closed manifolds, the existence of positive scalar curvature (psc) metrics on connected manifolds with nonempty boundary is unobstructed. We study and compare the spaces of psc metrics on such manifolds with various conditions along the boundary: $H \geq 0$, $H = 0$, $H > 0$, $II = 0$, doubling, product structure. Here H stands for the mean curvature of the boundary and II for its second fundamental form. ”Doubling” means that the doubled metric on the doubled manifold (along the boundary) is smooth and ”product structure” means that near the boundary the metric has product form.

We show that many, but not all of the obvious inclusions are weak homotopy equivalences. In particular, we will see that if the manifold carries a psc metric with $H \geq 0$, then it also carries one which is doubling but not necessarily one which has product structure.

This is joint work with Bernhard Hanke.