Outermost apparent horizons with non-trivial topology

The outermost apparent horizon in an asymptotically flat Riemannian manifold with non-negative scalar curvature is a closed minimal surface with no other minimal surfaces in its exterior. It is related to trapped surfaces and event horizons in relativity.

It is a well known fact that outermost apparent horizons must allow metrics of positive scalar curvature. It is conceivable that this is also the only restriction on a bounding manifold to be an outermost apparent horizon. In this talk I want to describe some new examples of outermost apparent horizons with non-trivial topology.

This is a report on work in progress together with Eric Larsson.