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Christopher Lopez* (clopez04971@gmail.com). *Rigidity of the Ambient Obstruction Flow.*

The ambient obstruction tensor \mathcal{O} on a Riemannian manifold is a conformally covariant tensor of high order in the Ricci curvature. It is the gradient of the conformally invariant integral of a high order scalar curvature analogue termed Q curvature. In dimension four, \mathcal{O} is equal to the Bach tensor. The ambient obstruction flow (AOF) is a parabolic flow by \mathcal{O} and a conformal group counteracting term involving the scalar curvature. Stationary points of this flow are generalizations of Einstein metrics. We prove rigidity results for AOF that generalize known rigidity results for Bach - flat manifolds. These results permit us to continue to study the behavior of AOF near singularities. (Received September 26, 2017)