

We consider the back reaction of the energy due to quantum fluctuation of the background fields considering the trace anomaly for Schwarzschild black hole. It is shown that it will result in modification of the horizon and also formation of an inner horizon. We show that the process of collapse of a thin shell stops before formation of the singularity at a radius slightly smaller than the inner horizon at the order of $(M/M_p)^{1/3} l_p$. After the collapse stops the reverse process takes place. Thus we demonstrate that without turning on quantum gravity and just through the effects the coupling of field to gravity as trace anomaly of quantum fluctuations the formation of the singularity through collapse is obstructed. An important consequence of our work is existence of an extremal solution with zero temperature and a mass which is lower bound for the Schwarzschild solution. This solution is also the asymptotic final stable state after Hawking radiation.