

We present the particle creation probability rate around a dynamical black hole as an outcome of quantum fluctuations. Using the uncertainty principle for these fluctuations, we derive a new ultraviolet frequency cutoff for the radiation spectrum of a dynamical black hole. Using this frequency cutoff, we define the probability creation rate function for such black holes. We consider a dynamical Vaidya model, and calculate the probability creation rate for this case when its horizon is in a slowly evolving phase. Our results show that one can expect the usual Hawking radiation emission process in the case of a dynamical black hole when it has a slowly evolving horizon. Moreover, calculating the probability rate for a dynamical black hole gives a measure of when Hawking radiation can be killed off by an incoming flux of matter or radiation. Our result strictly suggests that we have to revise the Hawking radiation expectation for primordial black holes that have grown substantially since they were created in the early universe.