Boris Botvinnik and Peng Lu* (penglu@uoregon.edu). Evolution of relative Yamabe constant under Ricci Flow.

In a joint work with S.C. Chang in 2007 we derive, under a crucial technical assumption, a formula for the derivative of Yamabe constant $Y(g(t))$, where $g(t)$ is a solution of Ricci flow on closed manifolds.

In this talk we will present a joint work with B. Botvinnik to study the evolution of the relative Yamabe constants under Ricci flow on compact manifolds with boundary $M$. In particular, we show that if the initial metric $\bar{g}_0$ is a Yamabe metric, then, for Ricci flow $\bar{g}(t)$ with boundary conditions that mean curvature $H_{\bar{g}_t} = 0$ and conformal class $\bar{g}_t|_M \in [\bar{g}_0]|_M$, we prove that, under some natural assumptions, the time derivative of relative Yamabe constant is nonnegative and is equal to zero if and only the metric $\bar{g}_0$ is Einstein. (Received January 05, 2019)