Abstract:

Let M be a smooth, compact, connected two-dimensional, Riemannian manifold without boundary, and let \( C_\varepsilon \) be the amount of time needed for the Brownian motion to come within (Riemannian) distance \( \varepsilon \) of all points in M. The first order asymptotics of \( C_\varepsilon \) as \( \varepsilon \) goes to 0 are known. We show that for the two dimensional sphere \( \sqrt{C_\varepsilon} - 2\sqrt{2} (\log \varepsilon^{-1} - \frac{1}{4}\log\log \varepsilon^{-1}) \) is tight.

Joint work with David Belius and Ofer Zeitouni.