Li-Cheng Tsai* (lctsai.math@gmail.com). *Moments of the 2D stochastic heat equation at criticality.

We study the stochastic heat equation in two spatial dimensions with a multiplicative white noise, as the limit of the equation driven by a noise that is mollified in space and white in time. As the mollification radius $\varepsilon \to 0$, we tune the coupling constant near the critical point, and show that the single time correlation functions converge to a limit written in terms of an explicit non-trivial semigroup. Our approach consists of two steps. First we show the convergence of the resolvent of the (tuned) two-dimensional delta Bose gas, by adapting the framework of Dimock and Rajeev (2004) to our setup of spatial mollification. Then we match this to the Laplace transform of our semigroup.

Joint work with Yu Gu and Jeremy Quastel (Received June 06, 2019)