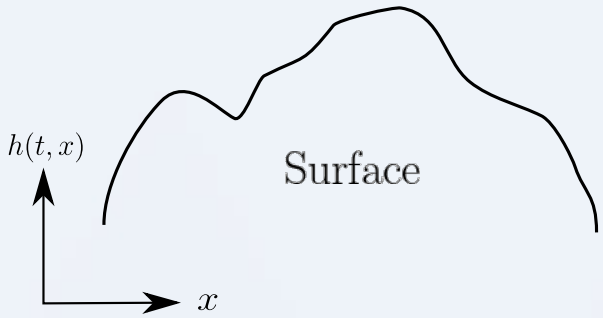
Yier Lin (MSRI postdoc)

- The Kardar-Parisi-Zhang (KPZ) equation

$$\partial_t h(t,x) = \frac{1}{2}\partial_{xx} h(t,x) + \frac{1}{2}(\partial_x h(t,x))^2 + \xi(t,x).$$



- Many interesting questions for the behavior of $h(t,0)$: Fluctuation limit, large deviations, time correlation, law of iterated logarithm ...

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- Look at the KPZ equation with a small noise,

$$\partial_t h_\varepsilon(t,x) = \frac{1}{2}\partial_{xx} h_\varepsilon(t,x) + \frac{1}{2}(\partial_x h_\varepsilon(t,x))^2 + \sqrt{\varepsilon}\xi(t,x).$$

  We prove large deviations of h_ε and derive a variational formula for the rate function.

  - Related to short time large deviations.
  - help understand the tail of the KPZ.
  - help understand the conditional limit shape of h_ε.