$u(x,t)$ at time $t = 0$

$u(x,t)$ at time $t = 1e^{-05}$

$u(x,t)$ at time $t = 0.002$

- **$C^{-1}$ Initial Conditions**
- **Gibbs Phenomena**
  
  \[ f(0) = 0, \quad f(L) = 1 \]

  200 Terms in Sine Series

- **$C^\infty$ for $t>0$**
- **No Gibbs Phenomena**
  
  \[ u(0,t) = u(L,t) = 0 \]

  200 Terms in Sine Series