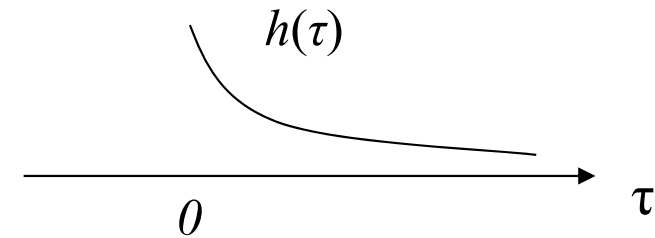


Physical interpretation of convolution integral

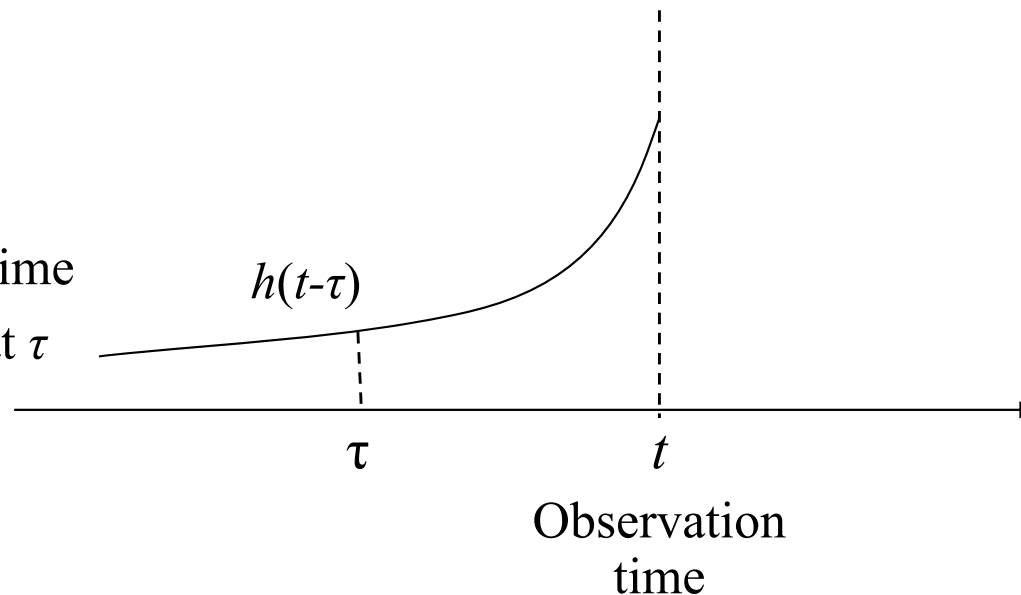
Input



Output

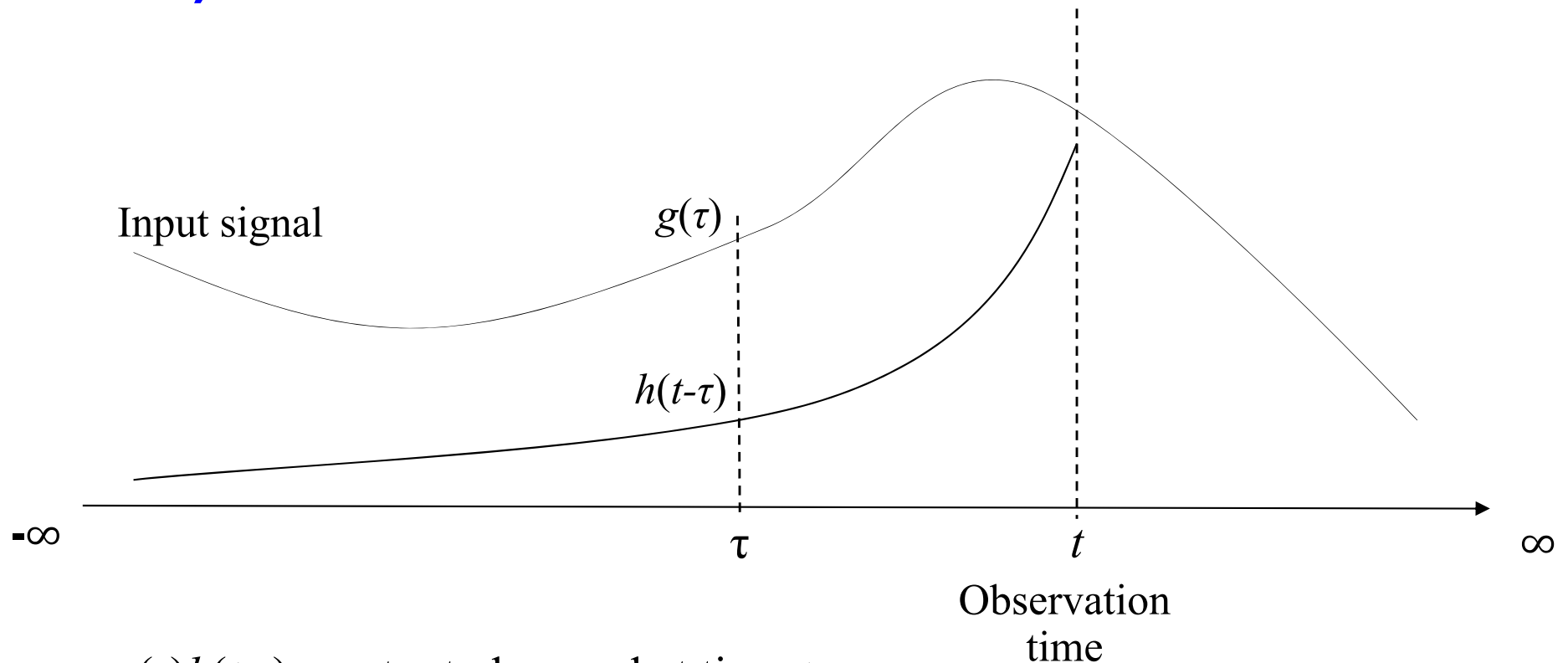


$h(t-\tau)$ = output observed at time t with unit impulse input at τ



$$y(t) = h(t) * g(t) = \int_{-\infty}^{\infty} g(\tau) h(t - \tau) d\tau$$

Physical interpretation of convolution integral (cont'd)



$g(\tau)h(t-\tau)$ = output observed at time t
with impulse of value $g(\tau)$ input at τ

$$y(t) = h(t) * g(t) = \int_{-\infty}^t g(\tau)h(t-\tau)d\tau = \text{sum of outputs at time } t \text{ due to all impulses of value } g(\tau) \text{ input at } \tau = -\infty \text{ to } t$$