

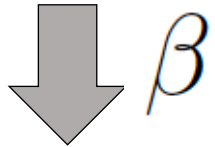
**Kermack &
McKendrick
(1927)**

Bilinear Incidence Rates

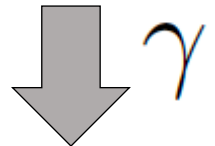
**Liu, *et al.*
(1987)**

Nonlinear Incidence Rates

**Susceptible
(S)**

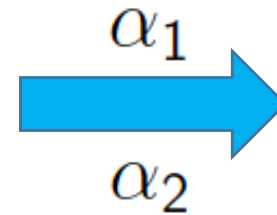


**Infectious
(I)**



**Removed
(R)**

$$\frac{dS_t}{dt} = -\beta_t I_t S_t$$



$$\frac{dS_t}{dt} = -\beta_t I_t^{\alpha_{1t}} S_t^{\alpha_{2t}}$$

$$\frac{dI_t}{dt} = \beta_t I_t S_t - \gamma_t I_t$$

$$\frac{dR_t}{dt} = \gamma_t I_t$$