

# Rayleigh-Plesset model

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November 1, 2021

## Governing Equation

$$\frac{d^2 r}{dt^2} + 40000 \frac{dr}{dt} + 2.8 \times 10^{11} r = c(t)$$

## Initial Conditions:

$$r(t=0) = 10^{-5}$$

$$r'(t=0) = 0$$

where:

$$c(t) = -100g(t)s(t)$$

$$s(t) = \begin{cases} \left(\frac{t}{5 \times 10^{-5}}\right)^{10} & 0 \leq t \leq 5 \times 10^{-5} \\ 1 & 5 \times 10^{-5} < t \leq 5 \times 10^{-4} \end{cases}$$

$$g(t) \sim \mathcal{GP}(\mu = -1500, 400k(t1, t2))$$

$$k(t1, t2) = \exp\left(\frac{-||t1 - t2||^2}{2 * 10^{-8}}\right)$$