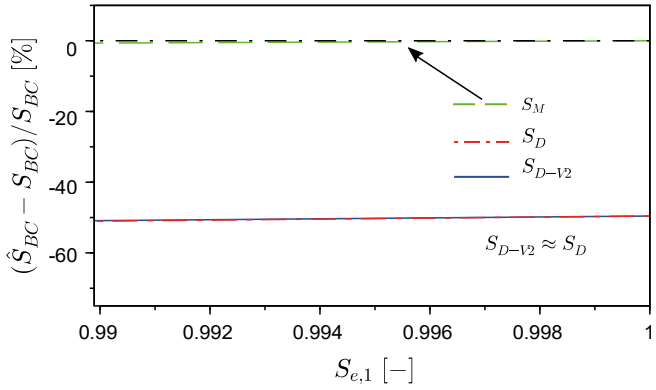
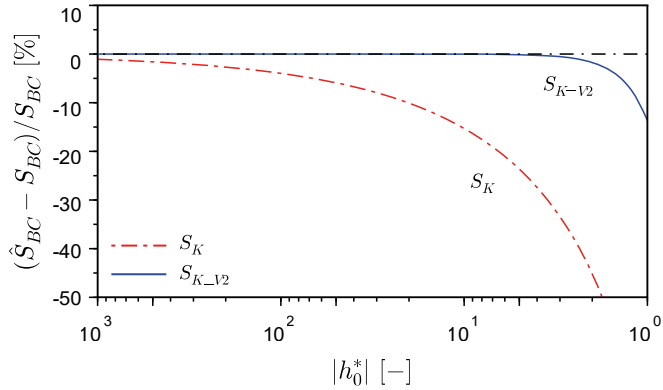


New mixed formulation for computing sorptivity

$$S_M(\theta_0, h_1) = \sqrt{\int_{\theta_0}^{\theta(h_c)} (\theta(h_1) + \theta - 2\theta_0) D(\theta) d\theta + \int_{h_c}^{h_1} (\theta(h_1) + \theta(h) - 2\theta_0) K(h) dh} \quad \text{v.s.}$$

Regular formulations

$$S_D(\theta_0, \theta_1) = \sqrt{\int_{\theta_0}^{\theta_1} (\theta_1 + \theta - 2\theta_0) D(\theta) d\theta}$$
$$S_K(h_0, h_1) = \sqrt{\int_{h_0}^{h_1} (\theta(h_1) + \theta(h) - 2\theta(h_0)) K(h) dh}$$



Model for $h_f < h_a$

$$QEI \left\{ t^* = \frac{1}{1-\beta} \left(I^* - \ln \left(\frac{e^{\beta I^*} + \beta - 1}{\beta} \right) \right) \right.$$

Extended model for $h_f < h_a$ and $h_f > h_a$

$$QEI_{ext} \left\{ \begin{aligned} I^* &= \frac{\sigma}{q^*-1} + \frac{1-\sigma}{\beta} \ln \left(1 + \frac{\beta}{q^*-1} \right) \\ t^* &= \frac{1-\sigma}{\beta(1-\beta)} \ln \left(1 + \frac{\beta}{q^*-1} \right) + \frac{\sigma}{q^*-1} - \frac{1-\sigma\beta}{1-\beta} \ln \left(1 + \frac{1}{q^*-1} \right) \end{aligned} \right.$$

