

⑦

$$r' = (1, e^t, e^t)$$

$$\|r'\| = \sqrt{1+2e^{2t}}$$

$$r'' = (0, e^t, e^t)$$

$$\|r' \times r''\| = e^t \sqrt{2}$$

$$r' \times r'' = (0, -e^t, e^t)$$

$$k(t) = \sqrt{2} \frac{e^t}{(1+2e^{2t})^{3/2}}$$

$$k'(t) = \sqrt{2} \frac{e^t(1+2e^{2t})^{3/2} - (e^t)(6e^{2t})(1+2e^{2t})^{1/2}}{(1+2e^{2t})^3}$$

$$= \frac{\sqrt{2}e^t \sqrt{1+2e^{2t}} (1+2e^{2t} - 6e^{2t})}{(1+2e^{2t})^3}$$

For $k'(t) = 0$: $4e^{2t} = 1$

$t = -\ln 2$

$$\sigma(-\ln 2) = \boxed{\left(-\ln 2, \frac{1}{2}, \frac{1}{2}\right)}$$