$$p_\varepsilon(r) = \frac{2b - a}{r\_\varepsilon^3} Fr - \frac{3}{2r\_\varepsilon^5} \left(2b \left(r^T Fr \right) I_n + a\varepsilon^2 F \right) r$$

where

$$F \in \mathbb{R}^{n \times n}$$
$$r \in \mathbb{R}^n$$
$$r\_\varepsilon \in \mathbb{R}$$
$$a \in \mathbb{R}$$
$$b \in \mathbb{R}$$
$$\varepsilon \in \mathbb{R}$$