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Apêndice

Equações não lineares de movimento tendo como origem as posições de equilíbrio pré-críticas apresentadas na Tabela 1.

Para $w_1 = 0{,}000$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 2w + w^2 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(2 + \bar{r}^2) - 3w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}020$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}96w + w^2 - 0{,}0396 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(1{,}8812 + \bar{r}^2) - 2{,}94w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}041$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}918w + w^2 - 0{,}080319 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(1{,}759043 + \bar{r}^2) - 2{,}877w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}064$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}872w + w^2 - 0{,}123904 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(1{,}628288 + \bar{r}^2) - 2{,}808w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}088$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}824w + w^2 - 0{,}168256 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(1{,}495232 + \bar{r}^2) - 2{,}736w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}116$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}768w + w^2 - 0{,}218544 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(1{,}344368 + \bar{r}^2) - 2{,}652w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}146$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}708w + w^2 - 0{,}270684 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(1{,}187948 + \bar{r}^2) - 2{,}562w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}181$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}638w + w^2 - 0{,}329239 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(1{,}012283 + \bar{r}^2) - 2{,}457w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}223$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}554w + w^2 - 0{,}396271 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(0{,}811187 + \bar{r}^2) - 2{,}331w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}280$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}44w + w^2 - 0{,}4816 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(0{,}5552 + \bar{r}^2) - 2{,}16w^2 + w^3 - \bar{P}_z = \bar{Q}$$

Para $w_1 = 0{,}423$

$$\bar{r}_{,\tau\tau} - \bar{r}\theta_{,\tau} + \bar{r}(\bar{r}^2 - 1{,}154w + w^2 - 0{,}667071 + \delta^2) - \bar{P}_r cos(\theta - \theta_p) = \bar{Q}$$

$$\theta_{,\tau\tau} + \frac{2\bar{r}_{,\tau}}{\bar{r}}\theta_{,\tau} + \bar{P}_\theta sen(\theta - \theta_p) = \bar{Q}$$

$$w_{,\tau\tau} + w(-0{,}001213 + \bar{r}^2) - 1{,}731w^2 + w^3 - \bar{P}_z = \bar{Q}$$