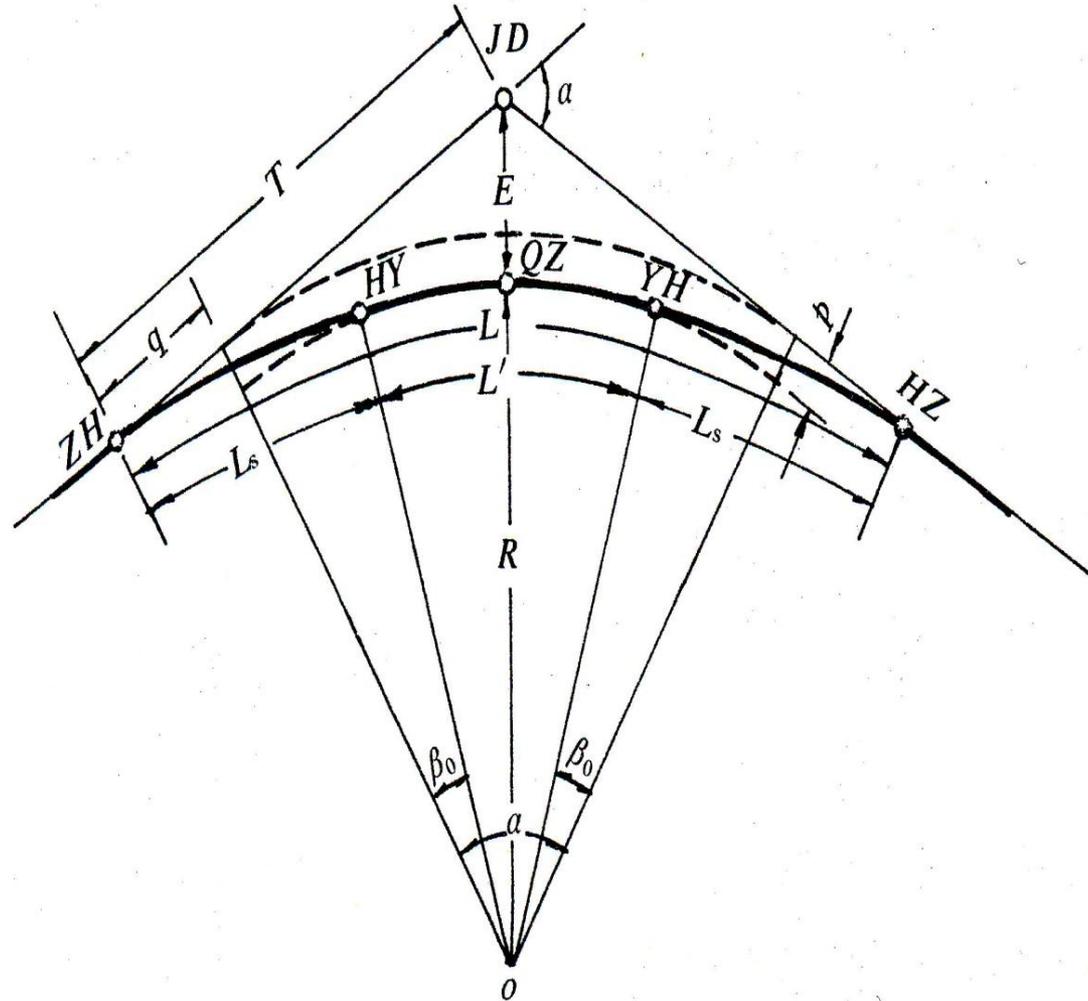


公路平面线形组成分析 缓和曲线要素计算



缓和曲线几何元素：

- 平面线形三要素的基本组成：
- 直线-回旋线-圆曲线-回旋线-直线



(1) 几何元素的计算公式:

回旋线终点处内移值:

$$\begin{aligned} p &= Y - R(1 - \cos \beta) \\ &= \frac{Ls^2}{24R} - \frac{Ls^4}{2384R^3} \quad (m) \end{aligned}$$

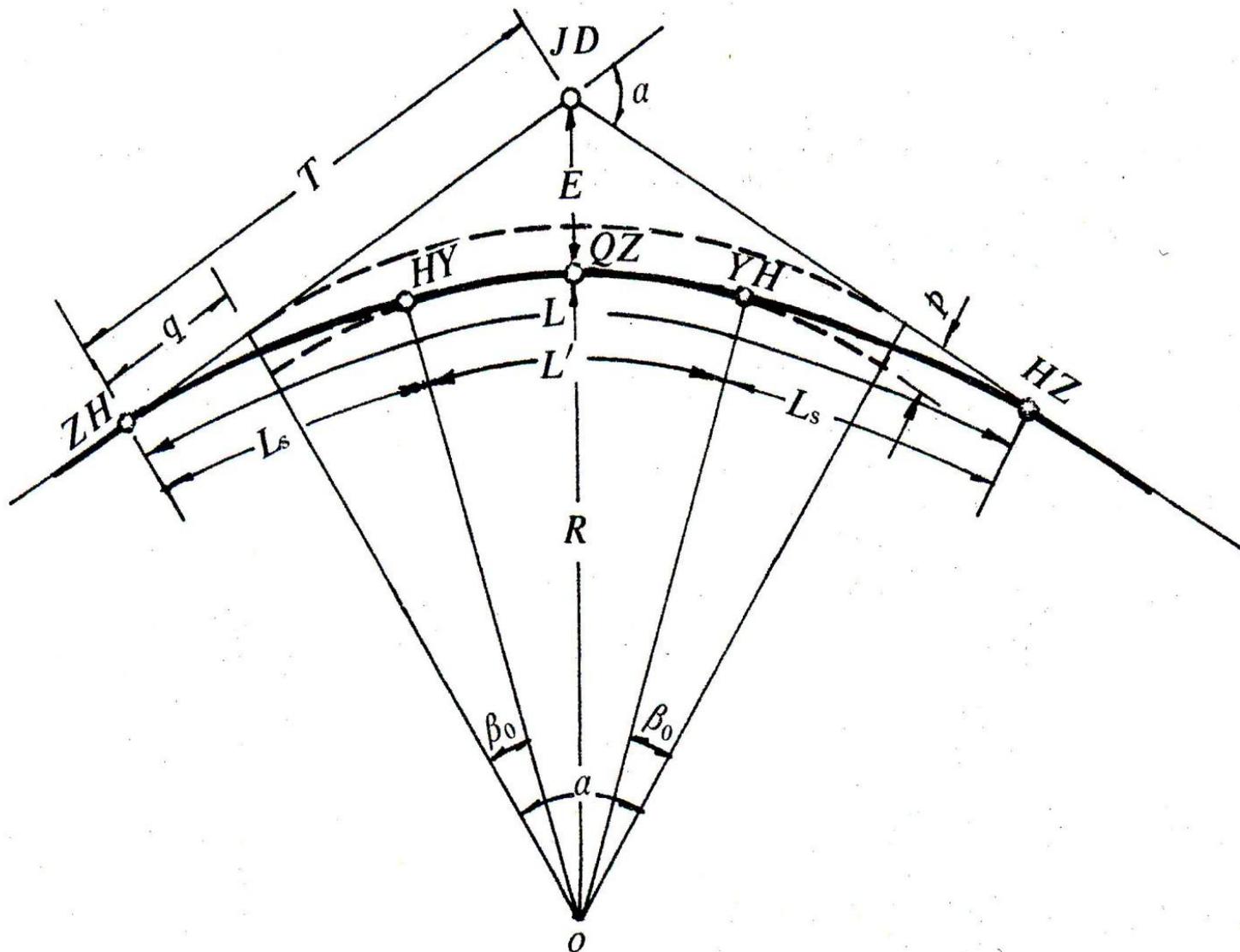
回旋线终点处曲率圆圆心x坐标:

$$\begin{aligned} q &= X - R \cos \beta_0 \\ &= \frac{Ls}{2} - \frac{Ls^3}{240R^2} \end{aligned}$$

回旋线终点处半径方向与Y轴的夹角:

$$\beta_0 = \frac{L^2 s}{2A^2} = \frac{Ls}{2R} = 28.6479 \frac{Ls}{R} \text{ (度)}$$

(1) 几何元素的计算公式:



$$T = (R + p) \operatorname{tg} \frac{\alpha}{2} + q \quad (\text{m})$$

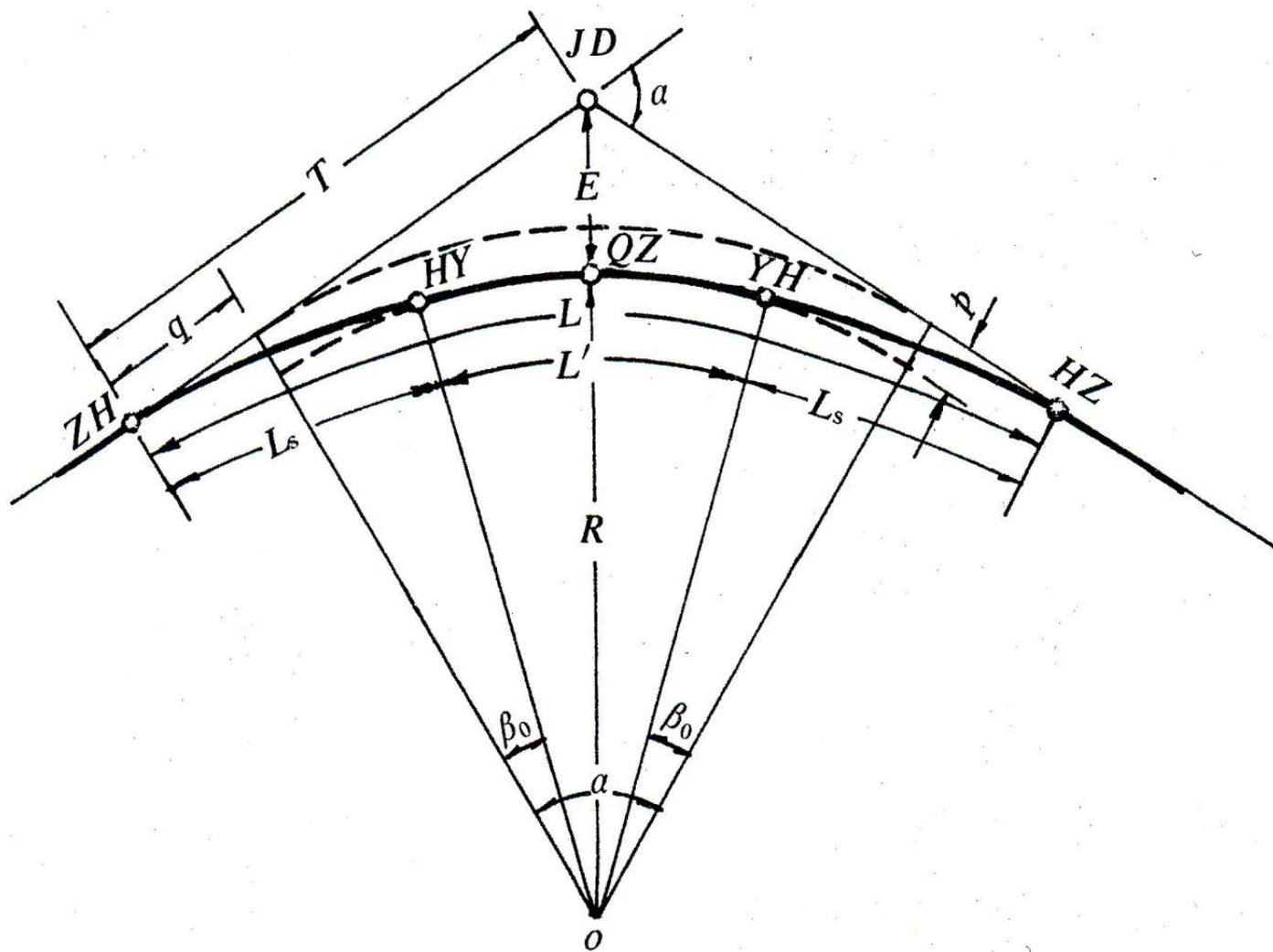
$$L = (\alpha - 2\beta_0) \frac{\pi}{180} R + 2Ls \quad (\text{m})$$

$$= \frac{\pi}{180} \alpha R + Ls \quad (\text{m})$$

$$E = (R + p) \operatorname{sec} \frac{\alpha}{2} - R \quad (\text{m})$$

$$J = 2T - L$$

(2) 主点里程桩号计算方法:



以交点里程桩号为起算
点：

$$ZH = JD - T$$

$$HY = ZH + L_s$$

$$QZ = ZH + L/2$$

$$YH = HZ - L_s$$

$$HZ = ZH + L$$

$$JD = QZ + J/2$$