

## A5COMAS

The tangential coma CT and the sagittal coma CS are calculated depending on  $\rho$  using expressions of the third order theory. For similar expressions see Jenkins and White, 4th Ed, p.163.

### 1. No coma and spherical aberration

$$r1 := 11 \quad r2 := -10 \quad x0 := -30$$

$$f := \frac{1}{\left(\frac{1}{r1} - \frac{1}{r2}\right) \cdot (n - 1)} \quad xi := \frac{1}{\left(\frac{1}{f} + \frac{1}{x0}\right)} \quad xi = 36.837$$

### 2. Definitons for calculations on coma

$$\pi := \frac{xi + x0}{(xi - x0)} \quad \sigma := \frac{r2 + r1}{r2 - r1} \quad \rho := 1.5$$

$$\pi = 0.102 \quad \sigma = -0.048$$

$$G := \frac{3 \cdot (2 \cdot n + 1)}{4 \cdot n} \quad W := \frac{3 \cdot (n + 1)}{4 \cdot n \cdot (n - 1)}$$

$$G = 2.07 \quad W = 4.165$$

$$ZZ := W \cdot \sigma + G \cdot \pi$$

### Tangential Coma CT as function of $\rho$

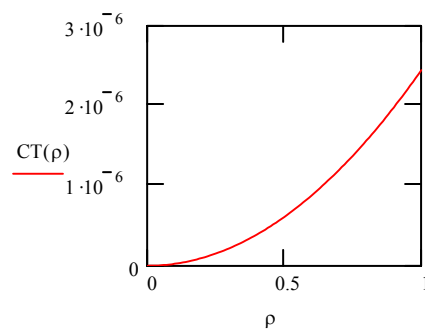
$$\rho \equiv 0, .01..1 \quad \beta := .05 \quad n \equiv 1.3168$$

$$CT(\rho) := \rho^2 \cdot \frac{ZZ \cdot \tan(\beta)}{f^2}$$

### Condition for elimination of coma

$$\text{If } \sigma = -((2n+1)(n-1)/(n+1))\pi$$

CT is zero for all zones



$$CS = 1/3 \text{ CT}$$