

L12MOCY5to9S

Cylindrical Coordinates for circular mirrors in confocal resonator.

Field distribution as contour plot of 02 to 20.

The L(l,p) functions are written out for 00 to 22. The constant in the exponential is X.

$$i := 0..N \quad j := 0..N \quad N \equiv 30 \quad x_i := -4 + .30001 \cdot i \quad y_j := -4 + .30001 \cdot j$$

$$R(x,y) := (x)^2 + (y)^2$$

$$\beta(x,y) := \left(\operatorname{atan}\left(\frac{x}{y}\right) \right)$$

$$q(x,y) := \left[e^{\frac{-R(x,y)}{X}} \right] \quad \text{constant X} \quad X \equiv 2$$

There h stands for l and p from 0 to 2, all formulas are written below.

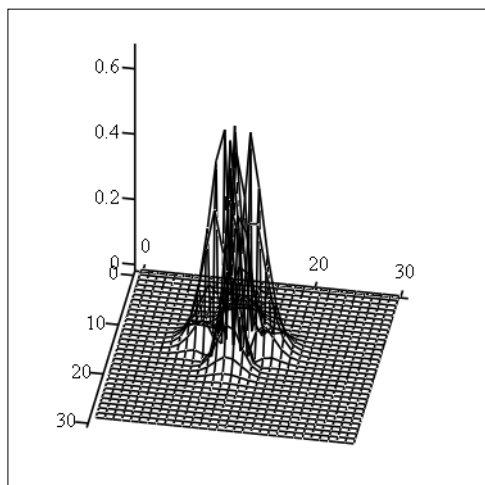
$$L_{h2}(x,y) = [1/2(h+1)(h+2) - (h+2)u(x,y)] + 1/2u(x,y)^2$$

$$u(x,y) := 4 \cdot \frac{R(x,y)}{X} \quad g(x,y) := \cos(0 \cdot \beta(x,y))$$

$$L_{02}(x,y) := 1 - 2 \cdot u(x,y) + \frac{1}{2} \cdot u(x,y)^2 \quad L_{22}(x,y) := 6 - 4 \cdot u(x,y) + \frac{1}{2} \cdot u(x,y)^2$$

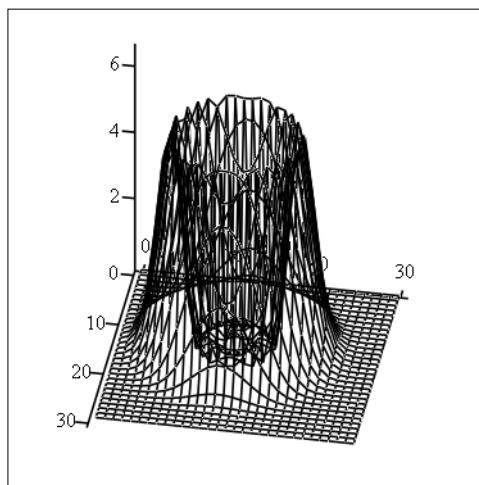
$$L_{12}(x,y) := 3 - 3 \cdot u(x,y) + \frac{1}{2} \cdot u(x,y)^2 \quad L_{21}(x,y) := 3 - u(x,y) \quad L_{20}(x,y) := 1$$

$$M02_{i,j} := \left(\cos(2 \cdot \beta(x_i, y_j)) \cdot q(x_i, y_j) \cdot L20(x_i, y_j) \right)^2$$



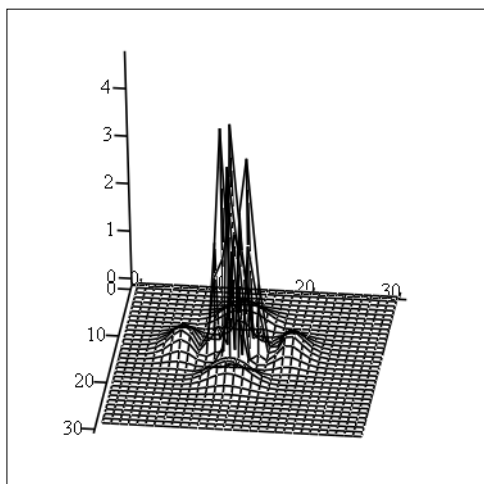
M02

$$M20_{i,j} := \left(\cos(0 \cdot \beta(x_i, y_j)) \cdot q(x_i, y_j) \cdot L02(x_i, y_j) \right)^2$$



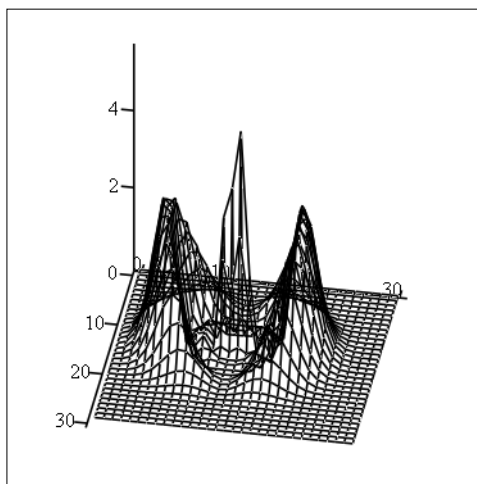
M20

$$M12_{i,j} := \left(\cos(2 \cdot \beta(x_i, y_j)) \cdot q(x_i, y_j) \cdot L21(x_i, y_j) \right)^2$$



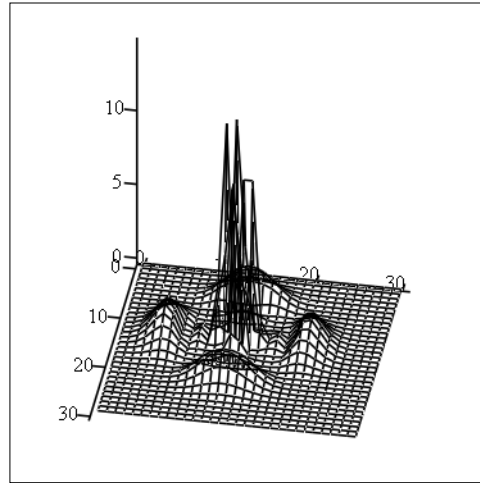
M12

$$M21_{i,j} := \left(\cos(1 \cdot \beta(x_i, y_j)) \cdot q(x_i, y_j) \cdot L12(x_i, y_j) \right)^2$$



M21

$$M22_{i,j} := (\cos(2 \cdot \beta(x_i, y_j)) \cdot q(x_i, y_j) \cdot L22(x_i, y_j))^2$$



M22