

# LC Soliton Simulator — Governing Equations (Sketch)

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## Transient PDE

Let  $\theta(x,y,t)$  be the director tilt. A common transient form is:

$$(\gamma_1/K) \partial\theta/\partial t = \nabla^2\theta + (\epsilon_0 \Delta\epsilon_{RF} E^2)/(2K) \cdot \sin(2\theta) + (\epsilon_0 n_a^2 |E_{op}|^2)/(4K) \cdot \sin(2\theta)$$

## Dimensionless Form

$$\partial\theta/\partial t' = \nabla^2\theta + b \cdot \sin(2\theta) + b_i l(x,y) \cdot \sin(2\theta)$$

## Notes

For exact LaTeX, keep equations in the GitHub README (MathJax).