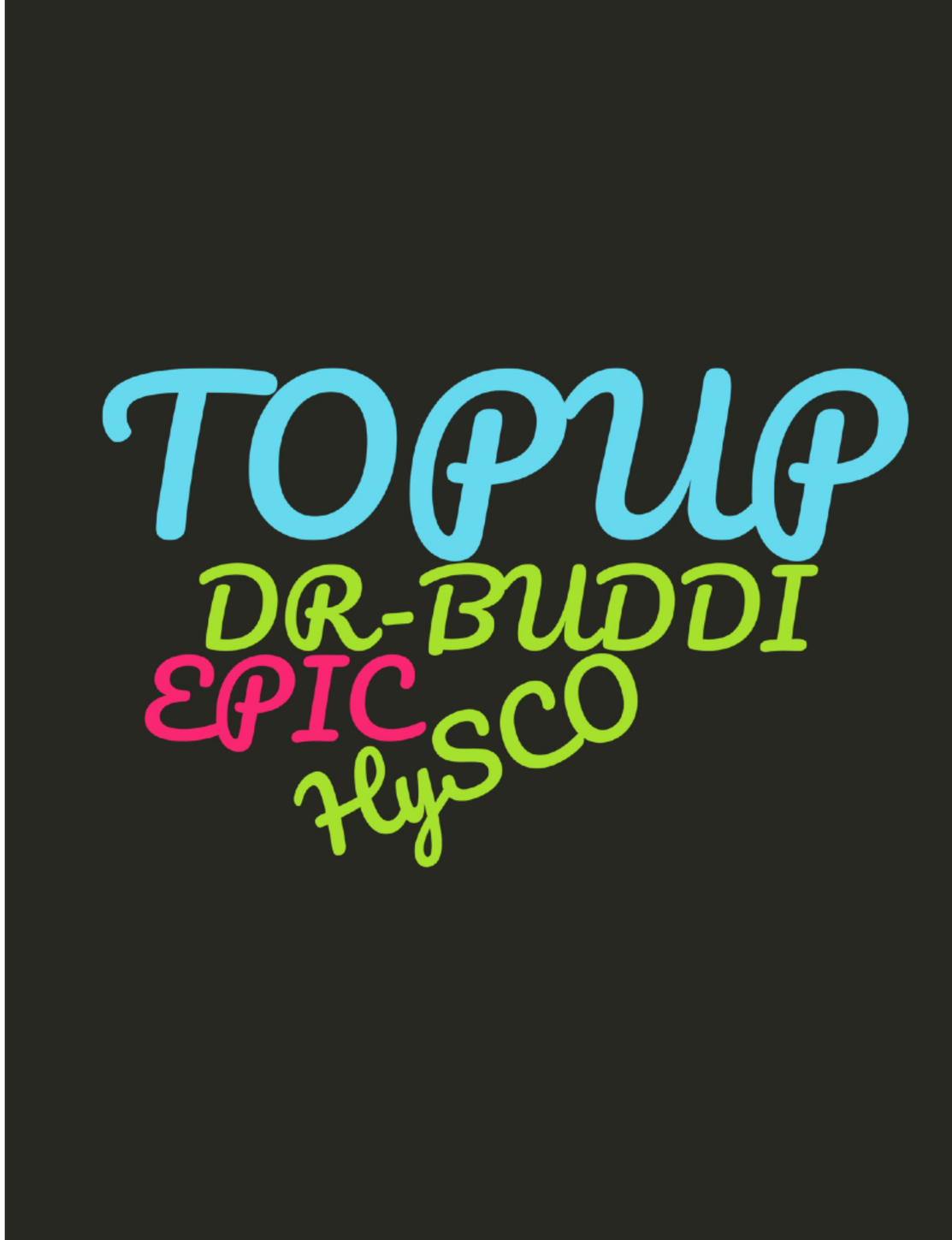
METHODS GALORE

- TOPUP is widely used
- Physics based, no real error except a few simplifications



TOPUP, A CLICK AND A YUP

$$S(t) \propto \int_x \int_y \rho(x, y) e^{iy[\Delta B(x,y) + G_f(x,y,t) + G_p(x,y,t)]} dx dy$$

$$\underbrace{\mathbf{s}}_{m \times 1} = \underbrace{\mathbf{A}}_{m \times n_x n_y} \underbrace{\boldsymbol{\rho}}_{n_x n_y \times 1}$$

$$\mathbf{A} = \begin{bmatrix} e^{iy[\Delta B_0(x_1,y_1)t_1 + G_f(x_1,y_1,t_1) + G_p(x_1,y_1,t_1)]} & e^{iy[\Delta B_0(x_2,y_1)t_1 + G_f(x_2,y_1,t_1) + G_p(x_2,y_1,t_1)]} & \cdots & e^{iy[\Delta B_0(x_{n_x},y_{n_y})t_1 + G_f(x_{n_x},y_{n_y},t_1) + G_p(x_{n_x},y_{n_y},t_1)]} \\ e^{iy[\Delta B_0(x_1,y_1)t_2 + G_f(x_1,y_1,t_2) + G_p(x_1,y_1,t_2)]} & e^{iy[\Delta B_0(x_2,y_1)t_2 + G_f(x_2,y_1,t_2) + G_p(x_2,y_1,t_2)]} & \cdots & e^{iy[\Delta B_0(x_{n_x},y_{n_y})t_2 + G_f(x_{n_x},y_{n_y},t_2) + G_p(x_{n_x},y_{n_y},t_2)]} \\ \vdots & \vdots & \ddots & \vdots \\ e^{iy[\Delta B_0(x_1,y_1)t_m + G_f(x_1,y_1,t_m) + G_p(x_1,y_1,t_m)]} & e^{iy[\Delta B_0(x_2,y_1)t_m + G_f(x_2,y_1,t_m) + G_p(x_2,y_1,t_m)]} & \cdots & e^{iy[\Delta B_0(x_{n_x},y_{n_y})t_m + G_f(x_{n_x},y_{n_y},t_m) + G_p(x_{n_x},y_{n_y},t_m)]} \end{bmatrix}$$

$$\underbrace{\mathbf{f}}_{n^2 \times 1} = \underbrace{\mathbf{F}^H}_{n^2 \times n^2} \underbrace{\mathbf{A}}_{n^2 \times n^2} \underbrace{\boldsymbol{\rho}}_{n^2 \times 1} = \underbrace{\mathbf{K}}_{n^2 \times n^2} \underbrace{\boldsymbol{\rho}}_{n^2 \times 1} .$$