

$$(\boldsymbol{r}_n, \boldsymbol{v}_n) \Rightarrow (\rho_n, \boldsymbol{J}_n)$$

Particle pusher

Fields push particles at to new positions and velocities

$$F_{n+1} \Rightarrow (r_{n+1}, v_{n+1})$$

$t_n \rightarrow t_n + \Delta t$



$(\rho_n, \boldsymbol{J}_n) \Rightarrow (\boldsymbol{E}_{n+1}, \boldsymbol{B}_{n+1})$

Field solver

Compute new EM fields on Yee

grid via Maxwell's equations

Interpolate fields off-grid onto particles

$$(\boldsymbol{E}_{n+1}, \boldsymbol{B}_{n+1}) \Rightarrow \boldsymbol{F}_{n+1}$$