

# Weekly work summary

Guangzhi Ren

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# content

- spectral simulation base on electromagnetic 5-field landau fluid
  - ▶ parallel computation scheme
  - ▶ comparision between different algorithms
  - ▶ conservation test
  - ▶ initial perturbation
  - ▶ residual flow simulation
- residual flow and GAM
- Hammett-Perkins closure
- ...

# consevation test

*question: accuration*

for LW2:

$$\frac{f_x^t - f_x^{t-\Delta t}}{\Delta t} - \mu(\nabla_{\perp}^2 f)_x^t = \frac{1}{2}(C_{x-1/2}^{t-\Delta t/2} + C_{x+1/2}^{t-\Delta t/2}) \quad (1)$$

$$\frac{E_x^t - E_x^{t-\Delta t}}{\Delta t} = \mathcal{E}\left\{\frac{1}{2}(C_{x-1/2}^{t-\Delta t/2} + C_{x+1/2}^{t-\Delta t/2}) + \mu(\nabla_{\perp}^2 f)_x^t\right\} \quad (2)$$

*problem: deviation triggered by volumn integration*

another idea:

$E$  as a coupling equation to field equation set

initial perturbation

...

# residual flow test