

Midterm Review

* MHD Equations in space plasma* (test) ①

* Potential magnetic field

- unipolar field solution

- Dipole field solution

- PFSS model

* Force-Free Field

(What is α ? prove α is constant along \vec{B}) # (test) ②

* sheared arcade

* Null points and separators

* X-point collapse - current sheet formation

* current sheet in 2-D potential field

(prove: $B_y + iB_x = f(z)$, (B_x, B_y) is potential) # (test) ③

(Draw null point, current sheet for a given $f(z)$) # (test) ④

* Magnetic Induction Equation

(derive induction equation from Ohm's Law) # (test) ⑤

(derive Reynolds number, Diffusion time) # (test) ⑥

* Frozen-flux

* Advection model

* Diffusion model

* stagnation-point flow model

(prove in 2-D, \vec{E} is constant) # (test) ⑦

* Sweet-Parker model