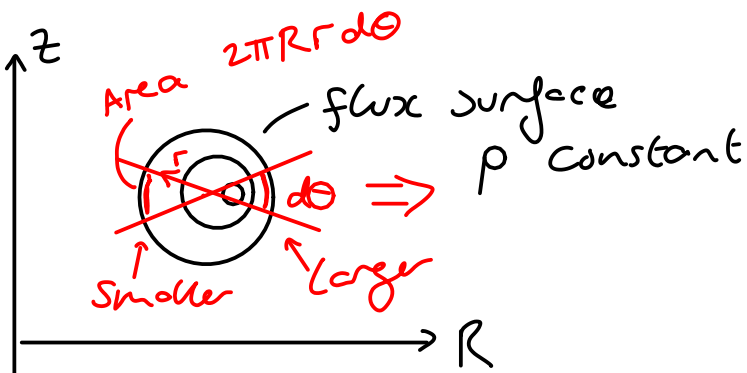


# Shafranov shift

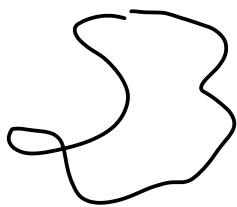
## Contents

- Hoop, tyre forces
- Shafranov shift
- Need for vertical magnetic field

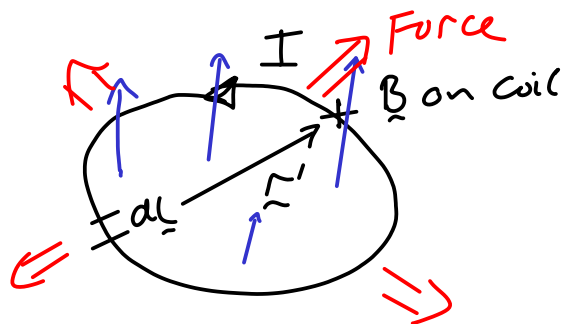


Net outward force due to plasma pressure

## Hoop force

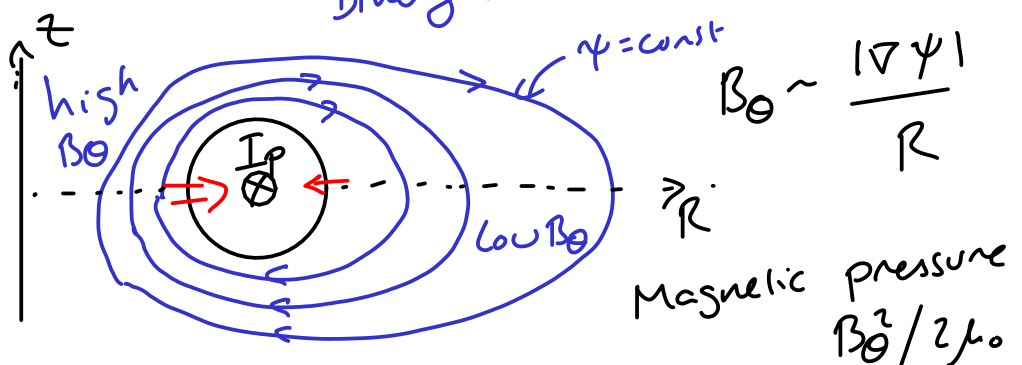


Current  $\Rightarrow$

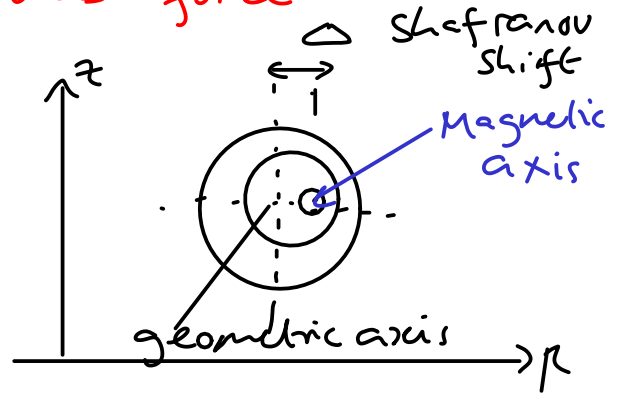
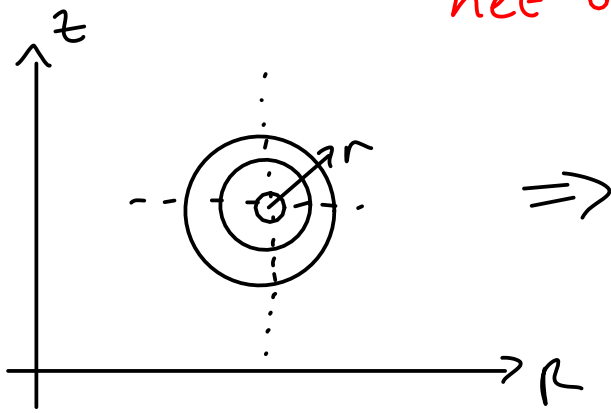


$$\vec{B} = \int \frac{\mu_0 I}{|\vec{r}'|^3} d\vec{l} \times \vec{r}'$$

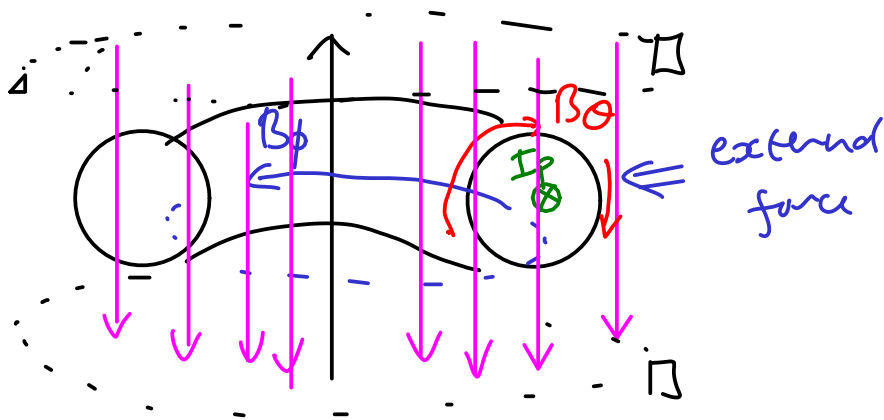
Diverges



net outwards force



Vertical magnetic field



Vertical field  
increases  $B_\theta$   
on outside  
decrease on  
inside