STUDYOF THE DYMNAMICS OF THE

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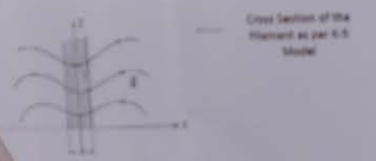
ABSTRACT : *Solar Prominences are intriguing, but poorly understood, magnetic str... the photosphere and sub-photosphere may be responsible for generating the mag... minences. The dynamics of solar prominences has been the subject of a large ... del using analytical approximations to analyse the nature of the dynamics of th... del.*



Cross Section of the Filament as per K-S Model

$$\rho_0 \frac{\partial v}{\partial t} = \frac{B_0}{4\pi} \frac{\partial H}{\partial y}$$

Coupled Equations

$$\frac{\partial H}{\partial t} = B_0 \frac{\partial v}{\partial y}$$

$$\frac{\partial}{\partial t}$$

For the Problem,

Initial Conditions : *for*

$v =$

B_0^2

9

n the Magnetohydrodynamics Equations,

Momentum Equation

$$\frac{\partial}{\partial t} - \nabla \times (\vec{v} \times \vec{B}) = 0$$

ρ_p

g to our Problem,

ρ_0 $B = [0, B_0, H]$

$H(y,t)\vec{i}$

$v(y,t)\vec{j}$

x

nsity of plasma

e external uniform magnetic field

perturbation in the field

velocity perturbation

Applying these parameters in the MHD equations

$$u = \frac{1}{\sqrt{4\pi\rho_0}}$$

$$u = \frac{\rho_p g}{\rho_0 - \rho_p}$$

Ve Observe!!!

Prominence wave

increases linearly

References

1. Low, B.C., 1982, Sol. Phys. 75,119
2. Low, B.C., & Hundhausen, J.R. 1995,