Colors

image on title slide background

Magnetohydrodynamics (MHD)

Theory

- Straight flux tube in uniform magnetic field.
- $\xi(x) = \xi(r)e^{i(kz+m\phi)}$
- Characteristic speeds are determined by the environment

Types of waves/oscillations:

- Alfvén: $V_A = \frac{B}{\mu_0 \rho}$
- Magnetoacoustic: $C_s = \sqrt{\frac{\gamma P}{\rho}}$
  - Fast $C_{A_0} < C_{fast} < C_{A_e}$
  - Slow $C_{T_0} < C_{slow} < C_{s_0}$

Example using columns

Kink

- loop spatial displacement
- Asymmetric
- No intensity change
- $k\sigma \ll 1$, or $\sigma \ll \lambda$

Sausage

- No loop spatial displacement
- Symmetric
- Intensity change $\rightarrow$ density change
- $\lambda \sim \sigma$
- long-wavelength limit

Important Properties

	period	**wavelength**	**velocity**
kink osc	value	value	value
sausage osc	value	value	value
acoustic osc	value	value	value
acoustic waves	value	value	value
fast waves	value	value	value
torsional modes	10 m	value	1000 km s^{-1}

```
\begin{center}
   \begin{tabular}{cc|c|c|}
% row 1
   \cline{3-4} & & \multicolumn{2}{|c|}{Condition (Gold sta
% row 2
   \cline{3-4} & & True & False \\
   \hline
% row 3 (and 4) - multirow
   \multicolumn{1}{|c|} % add in vertical lines
   {\multirow{2}{*}{Test outcome}}& % Text covers rows 3 ar
 % row 3
   \multicolumn{1}{|c|}{Positive} %
     & True Positive \cellcolor{green} & False Positive\cel
 % row 4
   \cline{2-4} \multicolumn{1}{|c|}{}
     & \multicolumn{1}{|c|}{Negative}
     & False Negative\cellcolor{red} & True Negative \cellc
    \hline
    \end{tabular}
```

```
\end{center}
```

Example of Two Column Output

Practical TEX 2005
Practical TEX 2005
Practical TEX 2005

Resources

sharelatex.com/learn/Beamer

Getting started

```
\documentclass{beamer}
\documentclass[17pt]{beamer} % change overall font size
\usepackage{graphicx} % Always use this for images
```

Fonts

```
\usefonttheme{serif}
\setbeamerfont{frametitle}{series=\bfseries}
```

Figure Template

Science Goals

This is what NH hoped to acheive, and how meeting these goals would contribute to planetary science in general solar system formation and evolution, etc.

1. First Goal
2. Second Goal
3. Third Goal

Multiple columns

Heading

1. Statement
2. Explanation
3. Example

Text text text