ERROR MAGNETIC FIELD WORKSHOP

WELCOME & INTRODUCTION

OCTOBER 31 – NOVEMBER 1, 2003

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AXIAL SYMMETRY IS BEAUTIFUL

HELICAL SYMMETRY IS BEAUTIFUL

DEVIATIONS FROM SYMMETRY CAN HAVE
DELETERIOUS EFFECTS

DEVIATIONS FROM SYMMETRY CAN HAVE
ADVANTAGEOUS EFFECTS

WORKSHOP -- Understand the effect of non-symmetric fields
eliminate the deleterious effects
develop the advantageous uses
== PLAN ==

ERROR FIELD

NON (AXIAL) SYMMETRIC FIELDs

QUESTIONS & ISSUES

- **Equilibria**
  - Axisymmetric
  - Helically symmetric
- **Edge control**
  - Stochasticity, Ergodicity
- **Plasma Rotation**
  - Rotational drag $\Rightarrow$ Loss of momentum $\Rightarrow$ Momentum Confinement
  - Effect on transport and stability in general
- **Plasma Stability**
  - Locked modes
  - Resistive Wall Modes (Error Field Amplification)
  - ???????

EQUILIBRIUM ISSUES

TOKAMAK

- **Importance of accurate equilibria**
  - Mapping of diagnostic measurements $\Rightarrow$ Separatrix location
  - Transport, especially H-mode pedestal
  - Stability, especially stability of the edge
  - Boundary physics
- **Issues/causes of discrepancies**
  - Insufficient profile parametrization (Separatrix can ''move'' with different edge pedestal pressure/current)
  - Error field coupled directly to ''axisymmetric'' measurements
    $\Rightarrow$ Multiple measurements
  - Loss of closed flux surfaces -- stochastization/ergodization
  - Non-axisymmetric equilibrum effects (3-D equilibria)