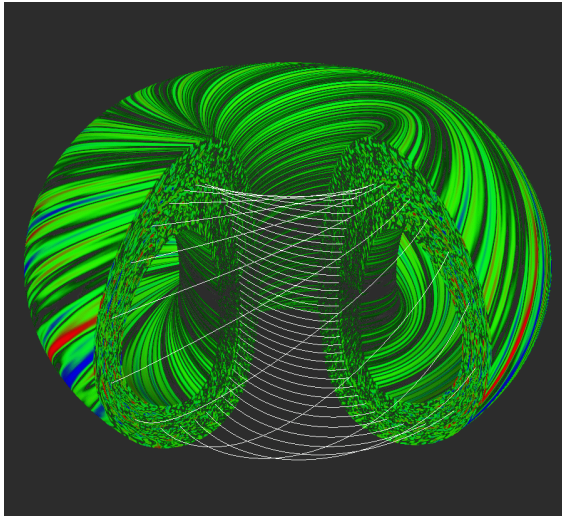
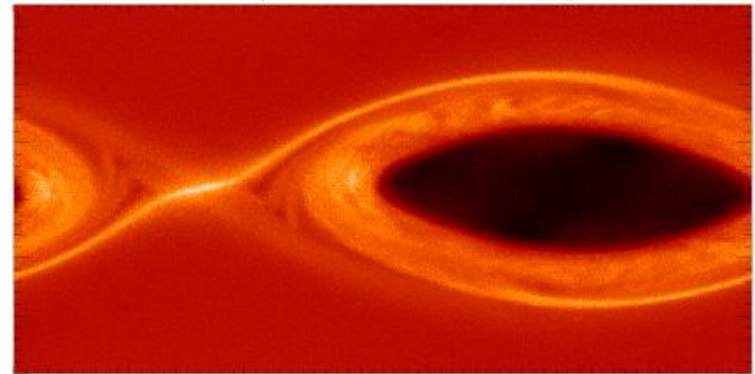


Plasma Physics at the University of Maryland

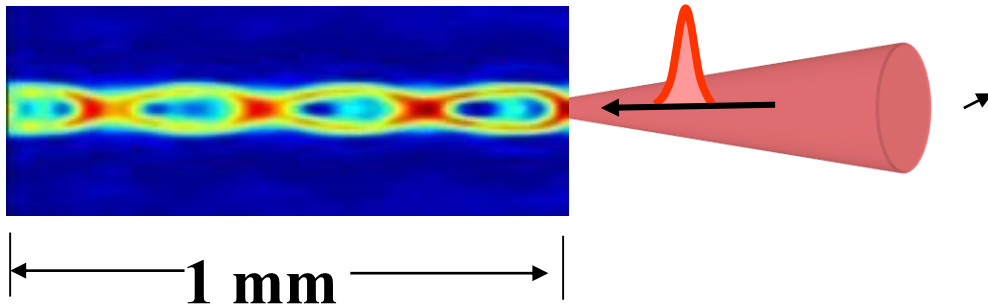


Turbulence and transport

A program based on theory and experiment addressing the most important topics in the field



Magnetic reconnection



Intense lasers and advanced accelerators

Teaching Faculty

- Experimental faculty
 - Dr. K. Kim – terahertz radiation sources
 - Dr. D. P. Lathrop – fluid dynamics and the dynamo
 - Dr. H. Milchberg – laser plasma interaction and advanced accelerators

Faculty Honors and Awards

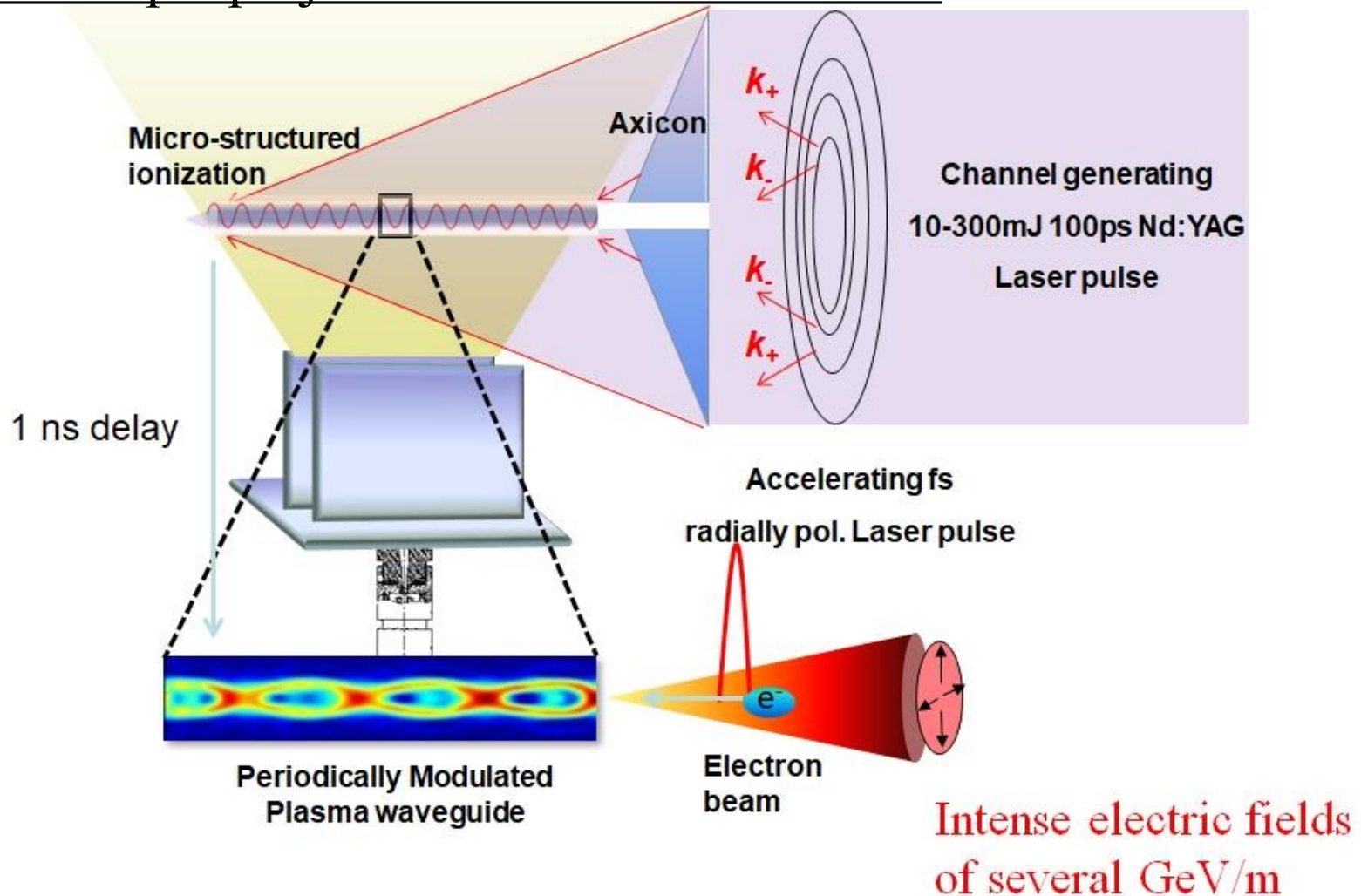
APS Maxwell Prize
E. O. Lawrence Award
Humboldt Prize
IEEE Plasma Science and
Applications Award
APS-DPP Excellence in Plasma
Physics Award

- Theoretical faculty
 - Dr. T. M. Antonsen – laser plasma interaction and nonlinear dynamics
 - Dr. W. Dorland – controlled fusion and astrophysics
 - Dr. J. F. Drake – space and astrophysics
 - Dr. A. B. Hassam – controlled fusion
 - Dr. P. Sprangle – laser plasma interaction

Intense laser-matter interactions- Dr. Milchberg

<http://lasermatter.umd.edu/>

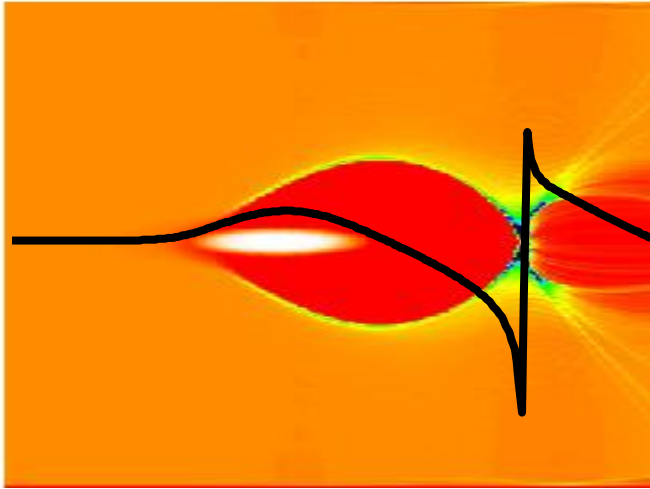
One example project: direct laser acceleration



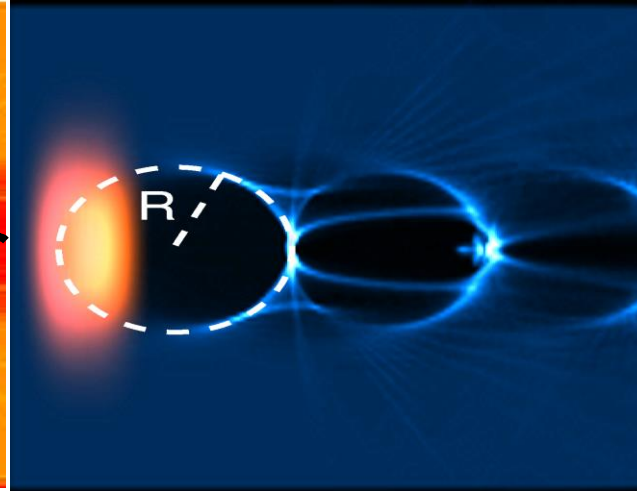
Intense Radiation - Plasma Interaction Theory

Group – Drs. Antonsen and Sprangle

- Excite a plasma wave wake using a relativistic particle beam or an intense laser as a driver.
- Plasma Wave Field Accelerates particles



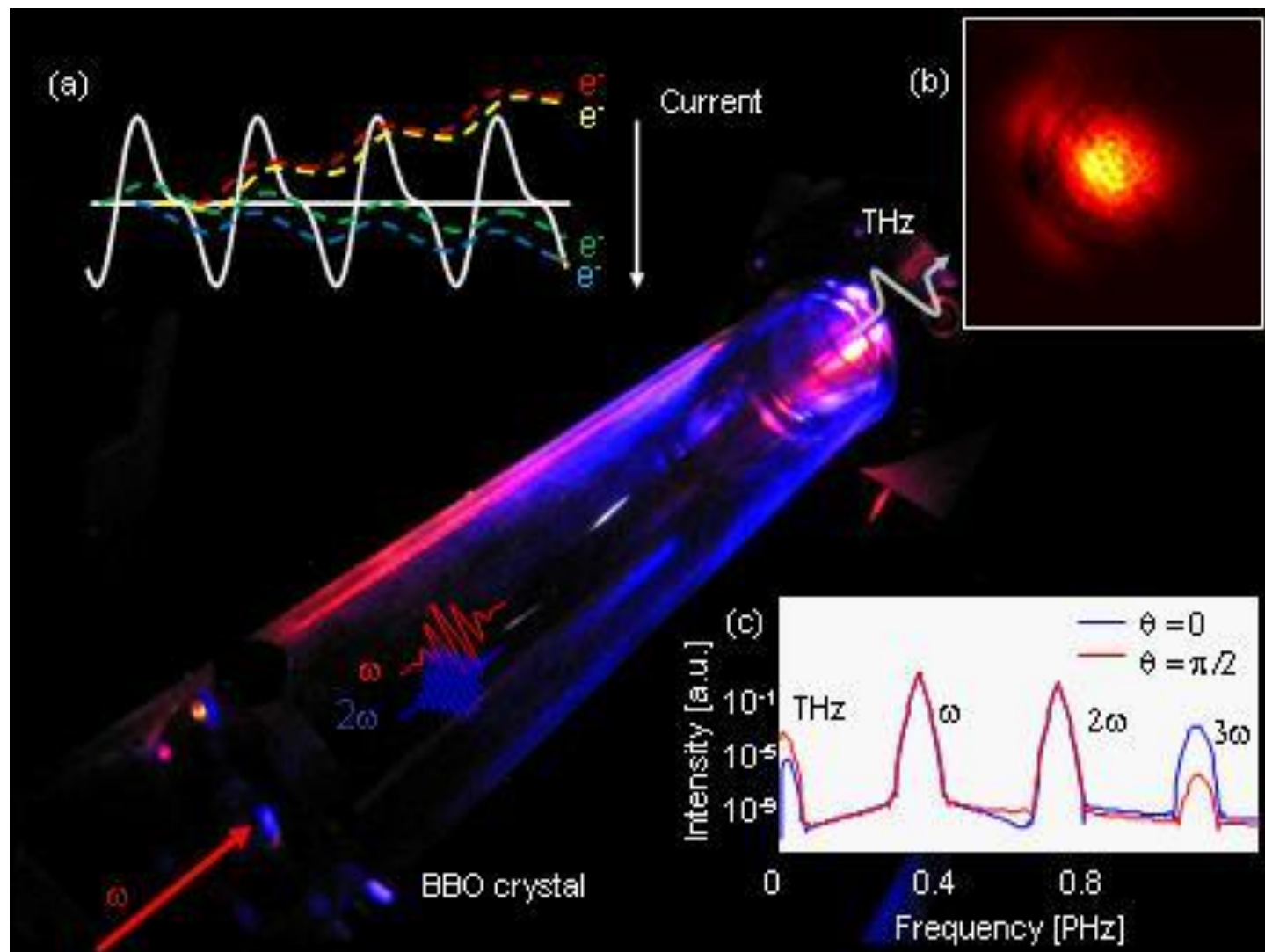
*Electron beam – driven
system*



Laser – driven system

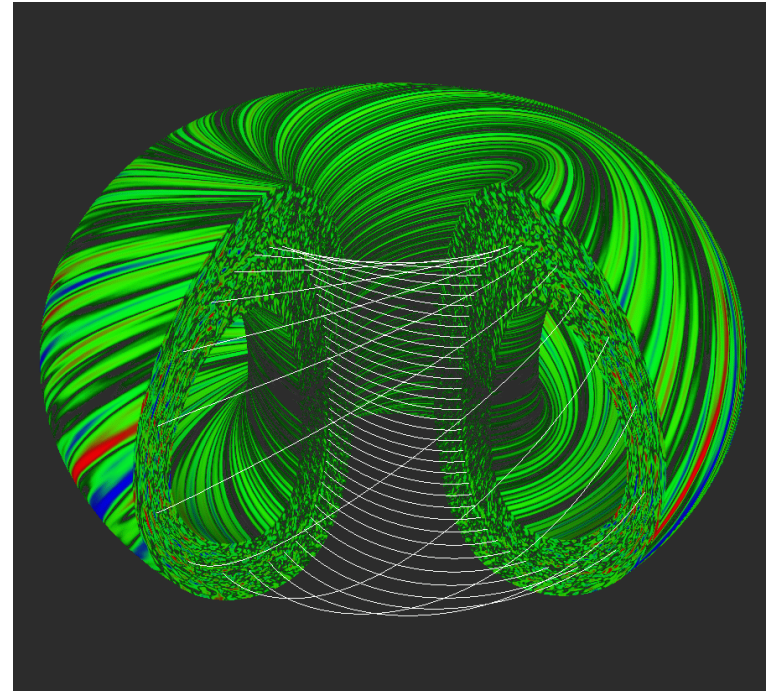


Dr. Kiyong Kim



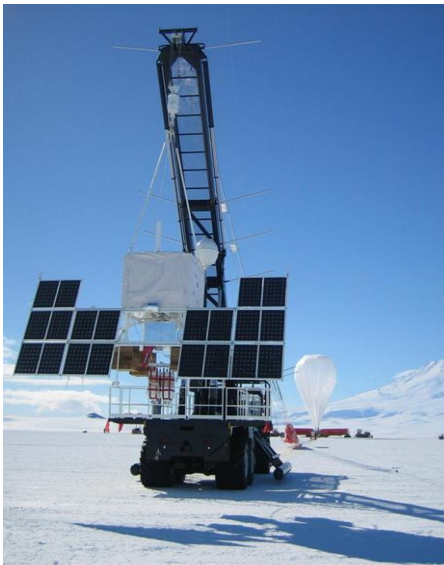
Plasma Turbulence Simulation and Modeling – Dr. Dorland

- Modeling of laboratory and astrophysical plasma turbulence
 - How does turbulence drive energy loss from fusion bottles?
 - How is astrophysical turbulence dissipated?
 - How does turbulence accelerate particles?



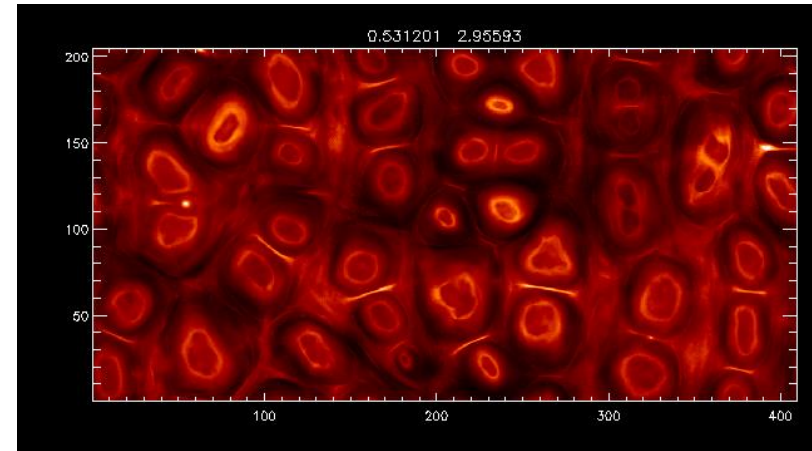
- Developer of Community Simulation Tools
 - GS2** – Laboratory simulation code with a large international user group
 - AstroGK** – Astrophysical simulation code with a large international user group

Space and Astrophysics

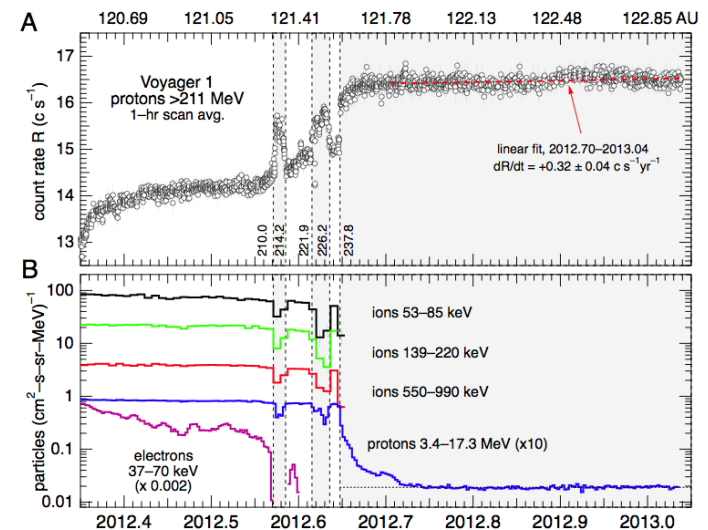


Measuring cosmic rays
with balloons

- Exploring key issues in space and astrophysics with theory and observations

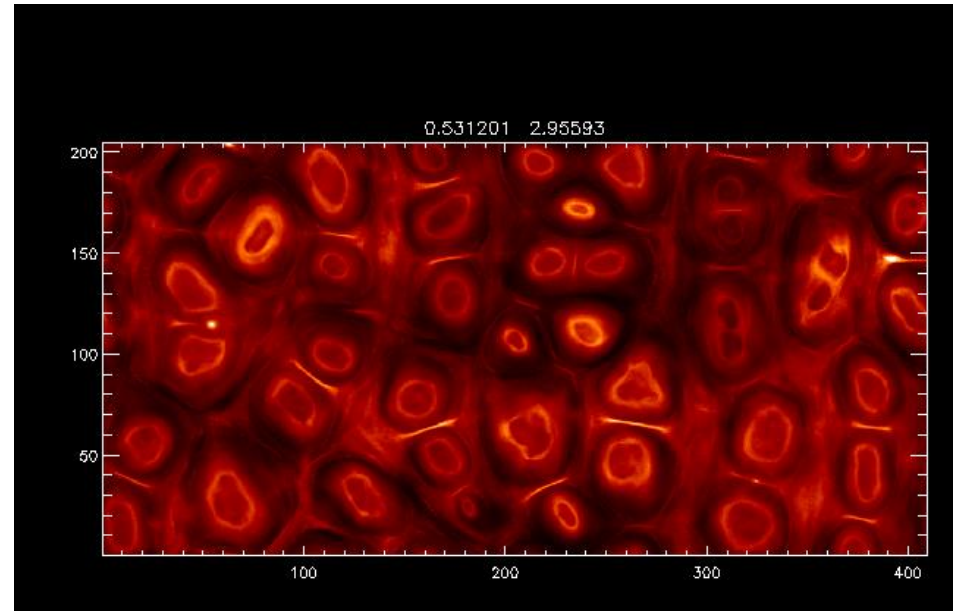
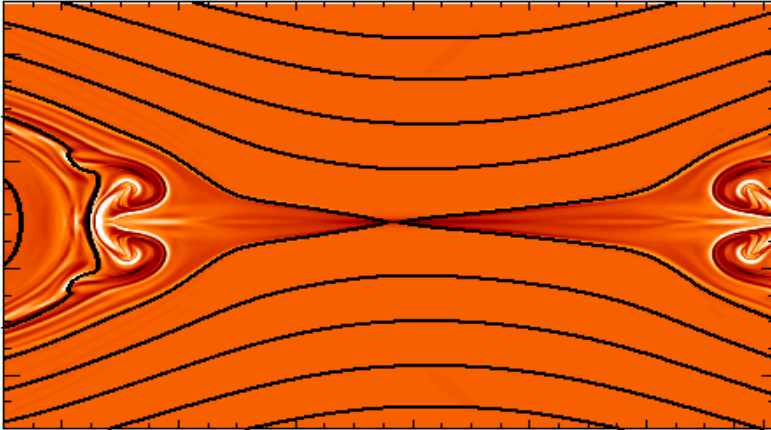


Magnetic reconnection



Voyager at the edge of the heliosphere

Magnetic Reconnection and Particle Acceleration – Dr. Drake



- The annihilation of magnetic fields drives explosions in the heliosphere and throughout the universe
 - A source of energetic particles in solar and stellar flares
 - The driver of storms in the Earth's magnetosphere
 - A driver of the highest energy cosmic rays?