



Particle distribution of highly energetic particles around the region of magnetic reconnection. The off-centered and oblong distribution confirms the existence of a previously speculated property known as agyrotropy.

Key Ideas

- Provide uniform array interface for scientific data in commonly used file formats, e.g., HDF5, ADIOS, and NetCDF
- Provide efficient searching functionality on top of existing user analysis frameworks while expand data handling capability and improve user productivity

Results

- Public release of FastQuery software
- Indexed and queried a **trillion particle** dataset for studying magnetic reconnection (or “space weather”)
 - ✓ Built index in 10 minutes
 - ✓ Located highly energetic particles in seconds
- “This is the **first time** anyone has ever queried and visualized 3D particle datasets of this size.” -- Homa Karimabadi, Physicist from UCSD