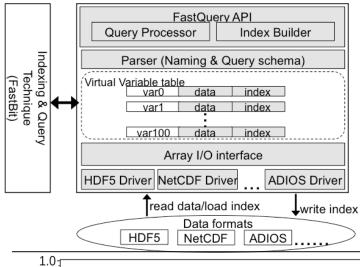
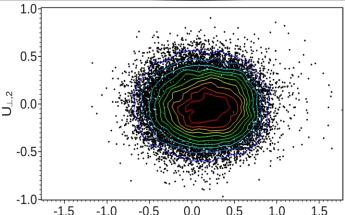
FastQuery: providing database capabilities for scientific files





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



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.

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

