12.a Measured Magnetic Fields

- Problem: How to simulate measured magnet fields with SIMION
- Solution: Save the magnetic field data in an ASCII file, load the data file into a user program array, and use Mfield_Adjust to define the fields
Tricks Used

- Potential Array data used to create data file
- Data file loaded into user program array
- Mfield_Adjust uses linear interpolation of array data to define magnetic fields to SIMION
Potential Array to Data File

- Fly neutrals on array intervals
- Use hollow electrodes (edge filled)
- Use time markers and data recording
Comparison Simulations

- Fly first ion in potential array’s Field
- Fly second ion in data file’s field
- Trajectories are almost identical
For More Information

• See the Measured Magnetic Fields demo in the user program reference directories

• Useful strategies
  • Ways to create data file from array data
  • Use of data files and user program arrays to simulate fields
    • 2D structure array addressing
    • Linear interpolation of fields
    • Conversion of 2D fields into 3D fields