**Structure of ASCOT5 hdf5 files**

The structure of the hdf5 files is:

* + **bfield**: contains all information about the magnetic field
  + **boozer**: presumably contains information about Boozer coordinates
  + **efield**: contains information about the electric field
  + **marker**: contains information about the ‘markers’ which is information about the birth locations, velocitities, mass, charge etc of the particles that are to be followed. This information is provided by the user as input data. Note that the velocities are defined in simple [R, phi, Z] coordinates, not for example in v\_parallel, v\_perp because at the time the marker information is computed, we don’t know anything about the magnetic field.
  + **mhd**: presumably defines the structure of MHD.
  + **neutral**: presumably defines the neutral density profile
  + **options**: contains the user-defined options parameters that controls the simulations.
  + **plasma**: contains all information about the plasma kinetic profiles, e.g. temperature and density.
  + **results**: contains all of the computed results of the simulation. Includes:
    - **dist5d**: (and probably dist6d if you asked the simulation to store the 6-dimensional distribution) contains the distribution function of the fast ions.
    - **endstate**: contains the position, velocity, etc of the markers when their simulation ends. Also includes an integer array ‘ENDCOND’ which defines what event caused the simulation to terminate the marker’s orbit simulation, e.g. the marker thermalized, crossed the LCFS, hit the wall, etc.
    - **inistate**: contains the ‘initial state’ of the markers. Some explanation is needed about how this information differs from the ‘marker’ data: the inistate data is computed by ASCOT given the marker information and the magnetic field data, i.e. if memory serves me correctly, the inistate includes variables such as v\_parallel. Also, depending on the type of simulation (guiding center versus gyro-orbit), there may be a shift of up to a gyro-radius in the position of the inistate versus marker.
    - **orbit**: contains the recorded orbit inforamtion
  + **wall**: contains information about the wall.