`dxhdf5`: A Software Package for Importing HDF5 Physics Data into OpenDX

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A software package, `dxhdf5`,[2] for importing HDF5 data into OpenDX is discussed. HDF5[3] is a hierarchical, self-describing data format that is rapidly becoming the standard for storing large data sets, such as those generated through high-performance computing. OpenDX,[4] formerly IBM's Data Explorer, is a free, powerful visualization package for examining data of any dimensionality. With `dxhdf5`, OpenDX users can easily visualize both field data on regular grids through the module, `ImportHDF5Field`, and particle data through the module, `ImportHDF5Species`.

The field module, `ImportHDF5Field`, imports data of a field defined on a regular and uniform grid of any number of dimensions and in either 32 or 64 bit precision. The user is allowed to import all of the field data or only that corresponding to a slab. Selecting a slab can considerably reduce OpenDX memory requirements as only a portion of a very large set of data is loaded into the operating memory.

The particle module, `ImportHDF5Species`, allows the user to import 32 or 64 bit particle data. Again, only a portion of a very large set of data need be loaded into the operating memory. Particles can be selected randomly, periodically, or by limits (maxima and minima for each of the particle variables – positions and momenta).

The `dxhdf5` package is available under the very liberal BSD license and so can be incorporated into any other packages. The package along with documentation can be obtained from the website in the footnote, below.

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[1] and Department of Physics
[2] http://www-beams.colorado.edu/dxhdf5/
[3] http://hdf.ncsa.uiuc.edu
[4] http://www.opendx.org