Patran format meshed files

This directory contains geometries that are filled with linear tetrahedral meshes in the PATRAN format suitable for use with MERRILL. The meshes are defined in units of microns, which is the assumed units in MERRILL.

The volume of each geometry is specified in terms of an equivalent spherical volume diameter. That is the volume of a cube or octahedron with mesh name 60.pat will be the same as that of a 60nm diameter sphere (note that the file names are in nm to make them easier to read).

The cuboctahedra geometries are meshed at 9nm (or finer for the smallest grains) appropriate to exchange length for magnetite. The cuboids and spheroids are meshed at 3nm or finer, appropriate to the exchange length for iron.

Each basic geometry shape is also provided in various elongations. The percentage elongation is denoted by the ‘E’ suffix, so that E00 is equidimensional and E50 is 50 percent elongated (short to long axis ratio = 0.5).

The elongation axis for Cuboids and Spheroids is along the [001] axis, and for cuboctahedra the long axis is along [100].

A complete set of geometries for each shape is about 3Gb uncompressed. If you don't need all elongations, you can download just a single shape elongation group form the geometry sub-directories.