Analysis of currents

The x component of the magnetic field is updated from

Note that the lower case indicates that the data lives on the cell face. This equation can be interpolated (for both time steps) to the cell center:

Where

This can be pictorially described (as done in the slides)

Current tangent to wall:

What is the correct ? Time for literature review.

For perfectly insulating, this must

Using indexes, in 2D for a uniform grid, current term may be written as

The flux of the current should be continuous across the interface. That is

# The normal component of the current must be zero at the interface for a perfectly insulating material

So, by linear interpolation, we have