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# FastHenry2 Creator

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file\_name=fasthenry\_creator(file\_name,coils,freq)

This function will take coils as input and generate a FastHenry2 compatible output Beware that file\_name must be a string 'This\_is\_a\_File\_Name' Coils must be a cell array of an arbitrary number of coils units in meters [m]

## Parameters

- @param **file\_name** Name of file to be created
- @param **coils** Cell array of compatible structs -> see generate\_coil
- @param **freq** Frequencies to Evaluate the coils
- @retval **file\_name** Original file\_name with .inp extension

## Code

```
function file_name=fasthenry_creator(file_name,coils,freq)
    file_name=[file_name '.inp'];
    fast_henry=fopen(file_name,'w');
    fprintf(fast_henry,'* FastHenry2 File Automatically Generated....
    JCCopyrights 2019\n');
    fprintf(fast_henry, '.Units M\n');%S.I.
    fprintf(fast_henry, '.Default z=0 sigma=5.8e4 w=%g h=%g nhinc=%g
    nwinc=%g\n',1,1,2,2);
    index=1;%Will assure no overlapping between Nodes for different coils
    %Generates Nodes and Segments for every Coil Introduced
    for j=1:1:size(coils,2)
        %Nodes ONLY depend of geometry
        fprintf(fast_henry, '\n*Coil %d Nodes:\n', j);
        coil=cell2mat(coils(j));
        X=coil.X; %coil geometry
        for i=index:1:index+size(X,2)-1
            fprintf(fast_henry, 'N%d x=%g y=%g z=%g\n',i,X(1,i-index+1),X(2,i-
            index+1),X(3,i-index+1));
        end

        %Segments include materials, coductors and discretization
        properties
        fprintf(fast_henry, '\n*Coil %d Segments:\n', j);
        for i=index:1:index+size(X,2)-2
            fprintf(fast_henry, 'E%d N%d N%d w = %g h = %g sigma = %g nhinc = %g
            nwinc = %g rh = %g rw = %g\n', ...
```

```
    i,i,i
+1,coil.w,coil.h,coil.sigma,coil.nhinc,coil.nwinc,coil.rh,coil.rw);

    end
    fprintf(fast_henry, '\n*Coil %d "%s" Electric Port:\n',
j,coil.coil_name);
    fprintf(fast_henry, '.external N%d N%d %s' ,index,index+size(X,2)-1,
coil.coil_name);
    fprintf(fast_henry, '\n');
    index=index+size(X,2);
end
%Notice that only works for ONE frequency
fprintf(fast_henry, '.freq fmin=%d fmax=%d ndec=1', freq, freq);
fprintf(fast_henry, '\n');
fprintf(fast_henry, '.end');
fclose(fast_henry);
end
```

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