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# -*- coding: utf-8 -*-
"""
Created on Tue Jun  3 13:47:26 2020
Export S21 data out of .s2p-file
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"""

import numpy as np

num_lines = 0
skip = 5                                     # number of lines to skip
fname_op = open('Model_S_param.s2p', 'r')
#fname = open('S_param.txt', 'r')
num_lines = sum(1 for line in fname_op)      #determine number of lines
fname_op.close()

print("Number of lines s2p-file:")
print(num_lines)

# -----Read data from s2p-file-----
fname = open('Model_S_param.s2p','r')
contents = fname.readlines()[skip:]          #read lines
freq = np.zeros(num_lines - skip, dtype=float) #populate arrays
S11_mag = np.zeros(num_lines - skip, dtype=float)
S11_ang = np.zeros(num_lines - skip, dtype=float)
S21_mag = np.zeros(num_lines - skip, dtype=float)
S21_ang = np.zeros(num_lines - skip, dtype=float)
S12_mag = np.zeros(num_lines - skip, dtype=float)
S12_ang = np.zeros(num_lines - skip, dtype=float)
S22_mag = np.zeros(num_lines - skip, dtype=float)
S22_ang = np.zeros(num_lines - skip, dtype=float)
i = 0

for line in contents:
    freq[i], S11_mag[i], S11_ang[i], S21_mag[i], S21_ang[i], S12_mag[i], S12_ang[i], S22_mag[i], S22_ang[i] = line.split(',')
    i += 1

fname.close()

# -----Write S21-data to s1p-file-----
fname1 = open('S21_from_Model.s1p', 'w')
fname1.write("!S21 extraction\n")

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fname1.write("# hz S ma R 50\n")
fname1.write("!1 Port Network Data created from 2 Port Network\n")
fname1.write("!freq magS21 angS21\n")

for i in range (0,num_lines):

    fname1.write("%9.0f\t %13.12f\t %10.7f\n" % (freq[i], S21_
    i += 1

fname1.close()
#-----End of file-----

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