Hunting down the MOC time constant

This is a little script made to hunt down the MOC time constant based on the very limited data that we have. MOC data is scaled and then overlayed upon the data.

```
obj.MAProot = fullfile('..');
addpath(...fullfile(obj.MAProot, 'modules'),...
                fullfile(obj.MAProot, 'utilities'),...
                fullfile(obj.MAProot, 'MAP'),...
                fullfile(obj.MAProot, 'parameterStore'),...
                fullfile('ASR files'));

close all; clear all; clc;

sr = 44100;
dt = 1/sr;
dur = 3.6;
freq = 1000;

nn=0;
% for levelSPL = 0:10:100;
levelSPL = 60;
SNR = 10;
preDur = 1.5;

nn = nn+1;
levelRec(nn) = levelSPL;

tAxis = dt:dt:dur;

ipSig = sin(2*pi*freq*tAxis);


ipSig = ipSig./sqrt(mean(ipSig.^2));
ipSig = ipSig * 20e-6 * 10 ^ (levelSPL/20);

preS = ceil(preDur*sr);
ipSig = [zeros(preS, 1)'  ipSig   zeros(preS, 1)'];




for kk = [0.005 0.010 0.020]
    for jj = 0.05:0.05:0.5

        paramChanges = {};
        paramChanges{numel(paramChanges)+1} = ['DRNLParams.rateToAttenuationFactor
        paramChanges{numel(paramChanges)+1} = 'DRNLParams.MOCrateThresholdProb = 6

        paramChanges{numel(paramChanges)+1} = 'OMEParams.rateToAttenuationFactorPr
        paramChanges{numel(paramChanges)+1} = 'DRNLParams.a=1e4;'; %DEFAULT = 5e4;
        paramChanges{numel(paramChanges)+1} = ['DRNLParams.MOCtau =' num2str(jj) '


        AN_spikesOrProbability = 'probability';
        MAP1_14(ipSig, sr, -1, 'Normal', AN_spikesOrProbability, paramChanges)

        % options.showEfferent=1;
        % UTIL_showMAP(options)
        % drawnow
```

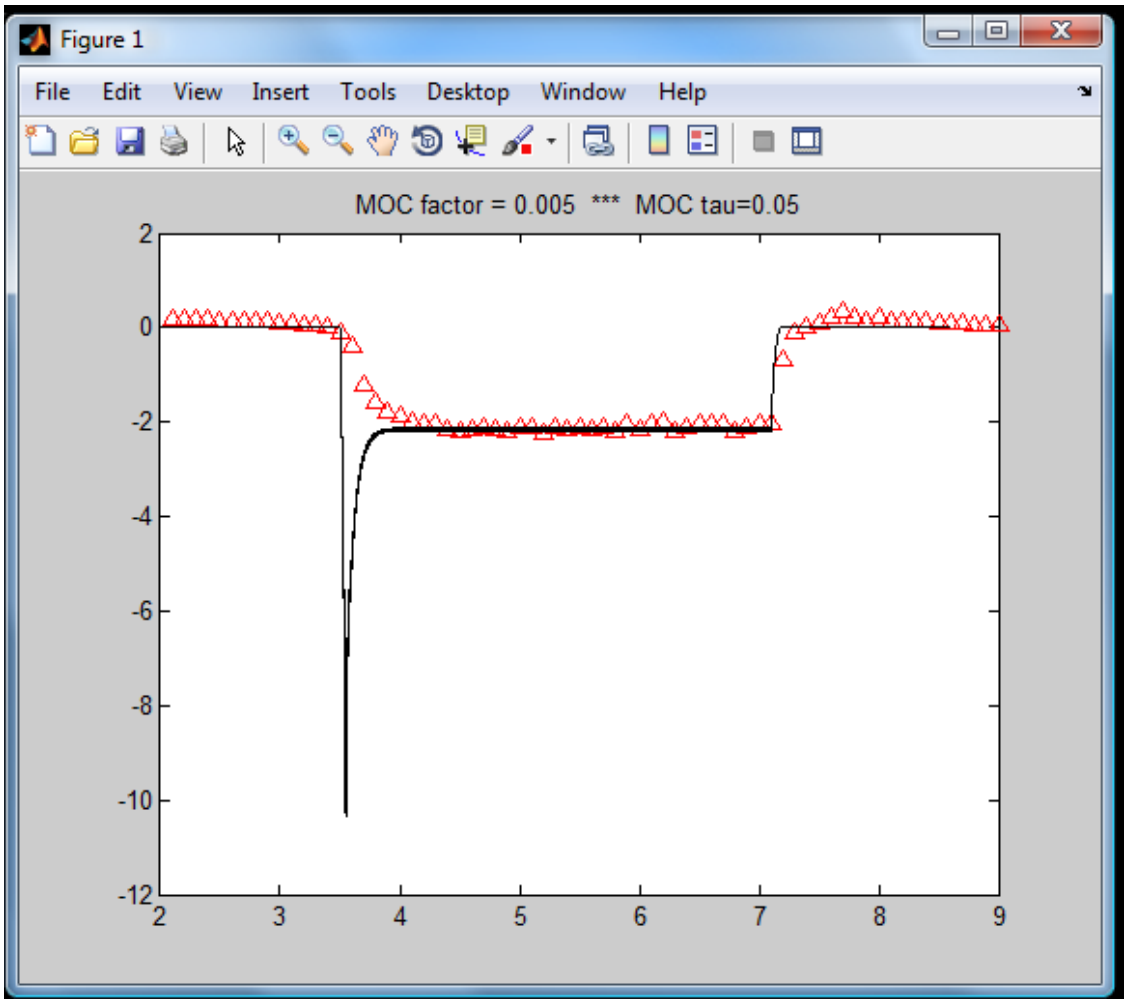
```
        global MOCattenuation

        chanID = find(mean(MOCattenuation,2) == min(mean(MOCattenuation,2)), 1);
        pAxis = 2:0.1:9;
        pData = [0.200000000000000,0.190000000000000,0.180000000000000,0.180000000

        startT = 3.5 - preDur;
        endT = startT + numel(MOCattenuation(chanID,:))*dt - dt;
        tAxis  = startT:dt:endT;

        attdB = 20*log10(MOCattenuation(chanID,:));
        normFactor = abs(mean(attdB(tAxis>6 & tAxis<7)))/2.15;

        figure
        plot(pAxis,pData, '^r')
        hold on
        plot(tAxis,attdB /  normFactor ,'k' )
        title(['MOC factor = ' num2str(kk) '  ***  MOC tau=' num2str(jj)])
    end
end
```



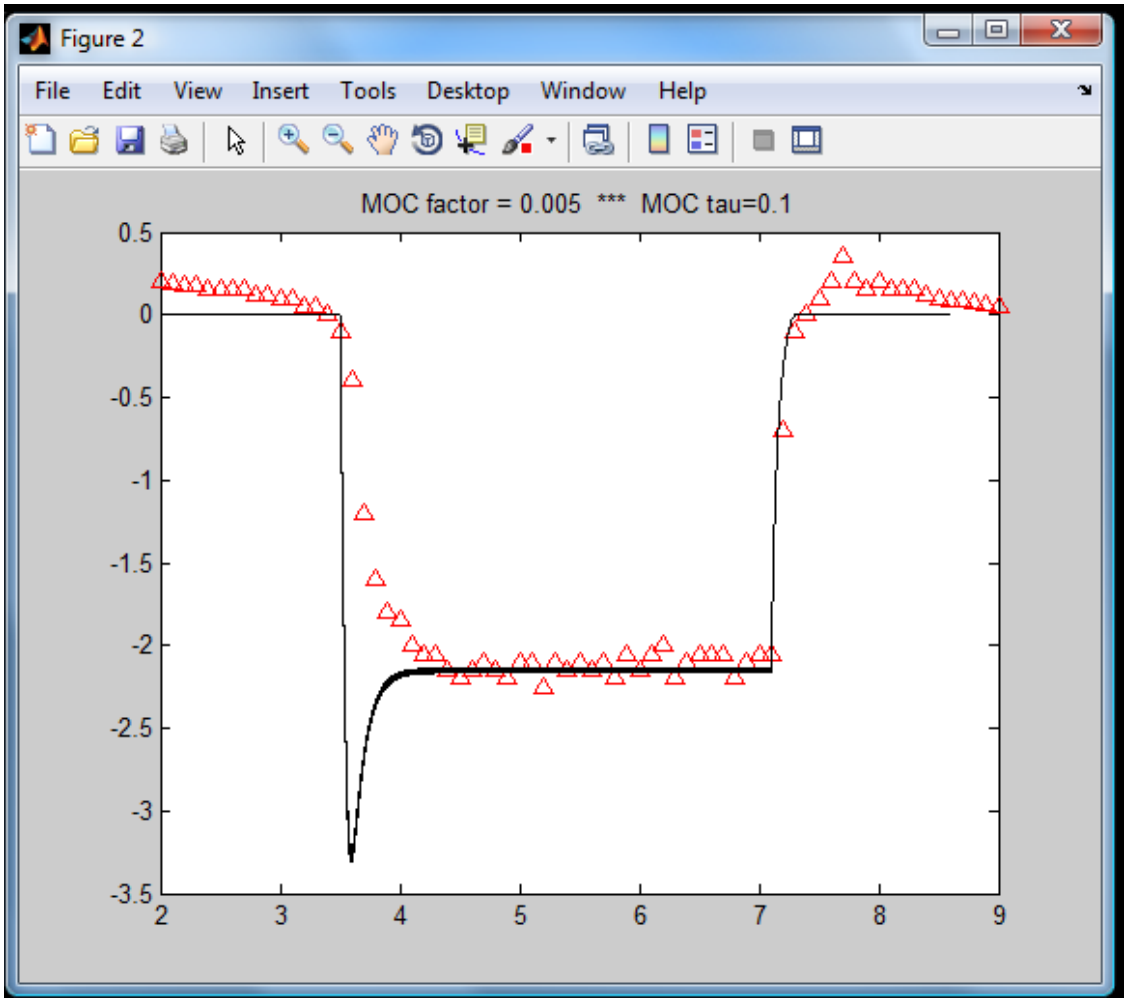


Figure 2
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
2
3
4
5
6
7
8
9

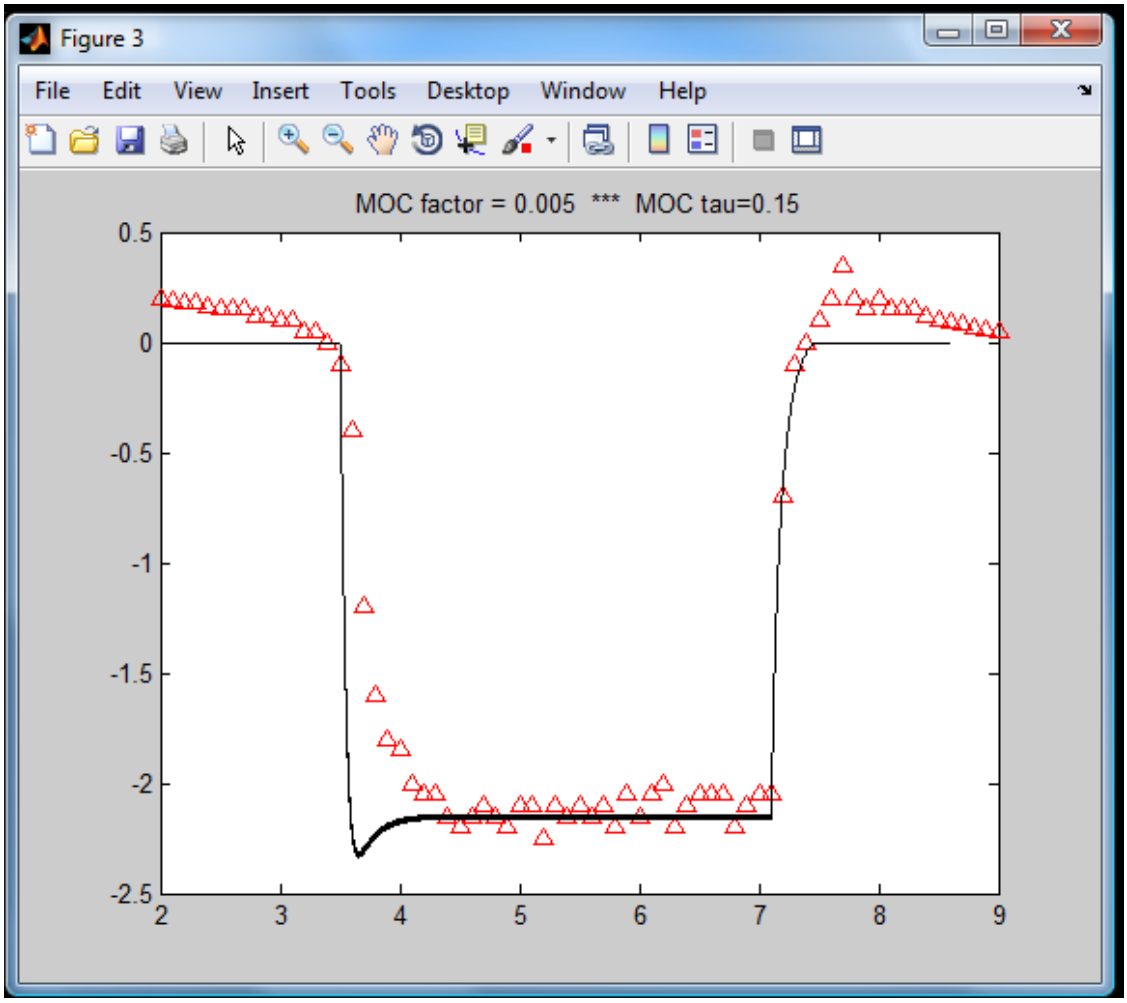


Figure 3
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.15
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

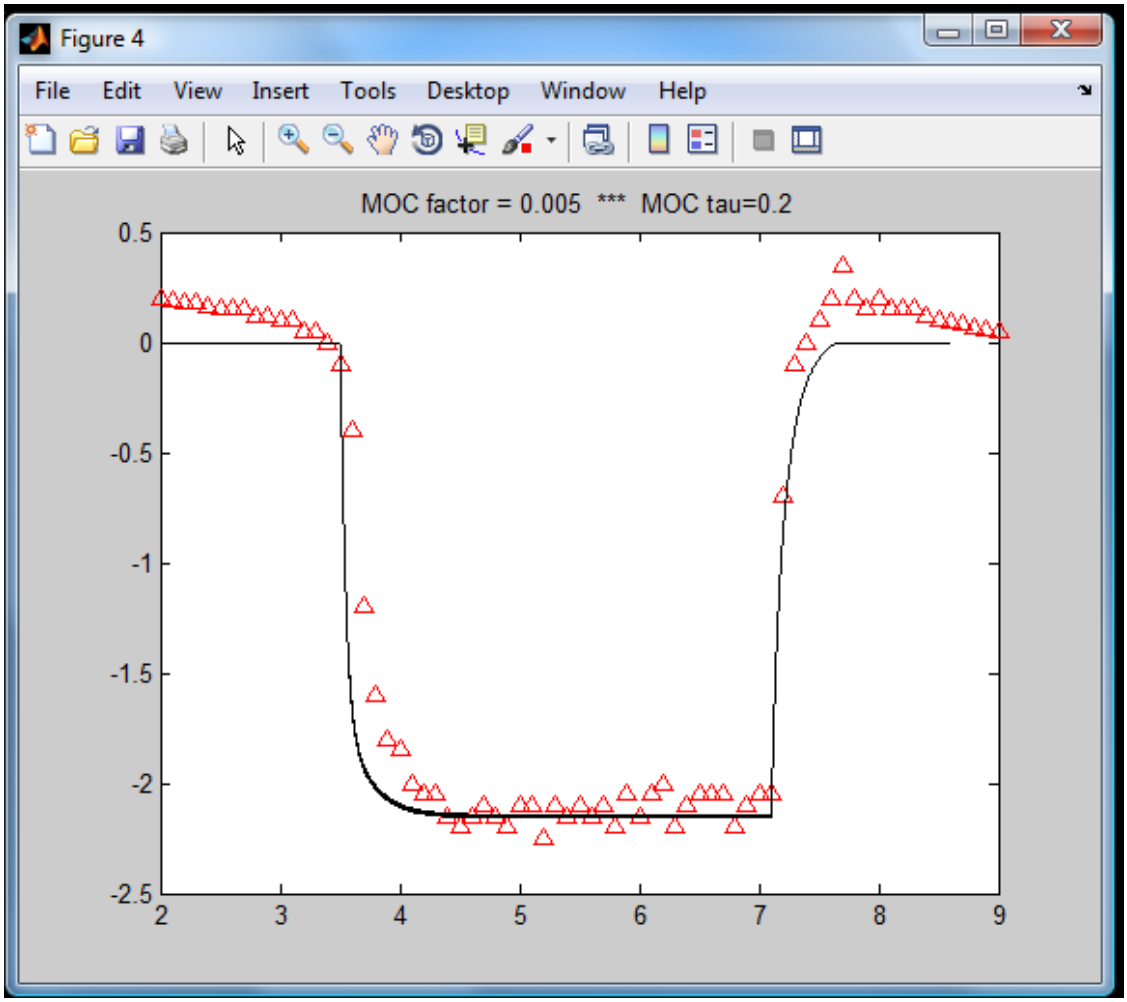


Figure 4
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.2
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

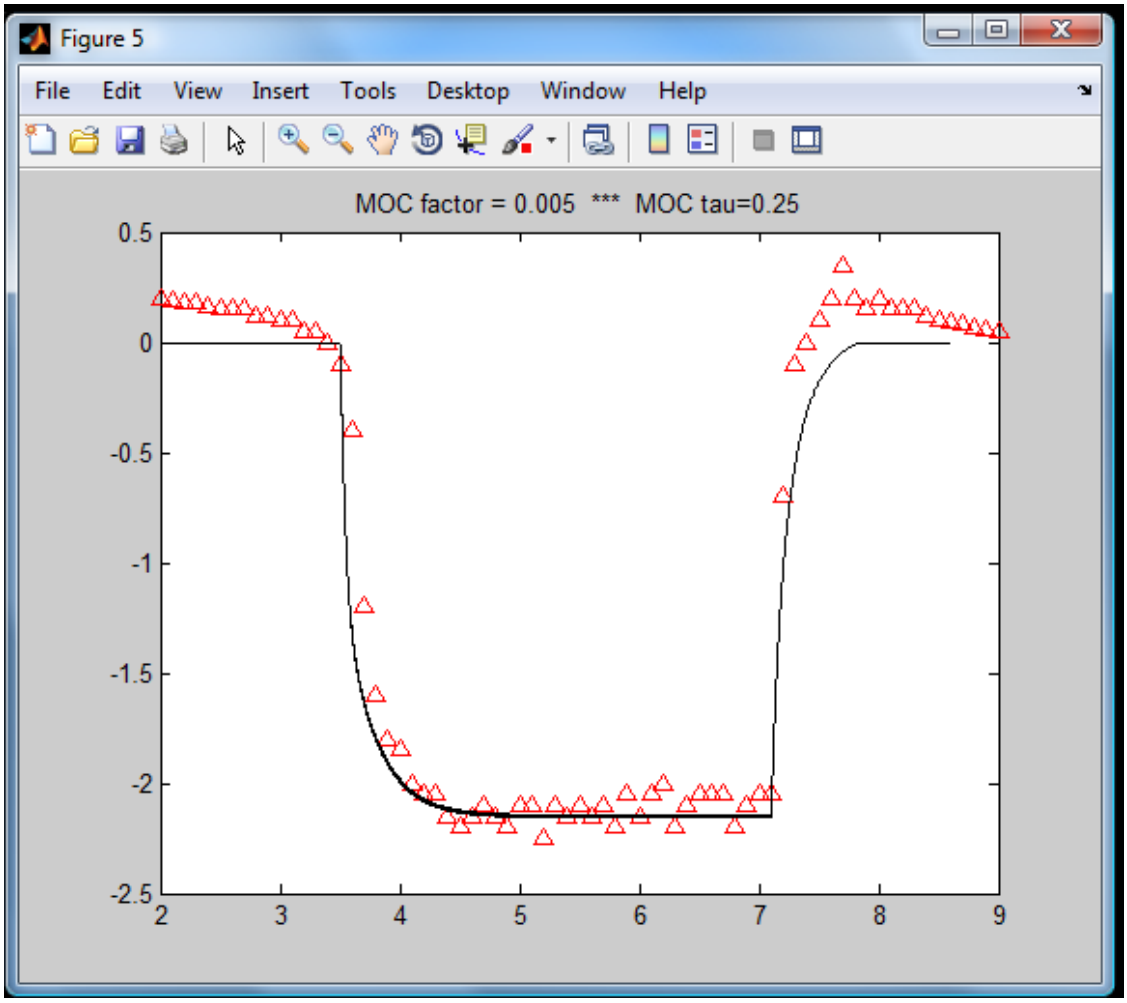


Figure 5
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.25
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

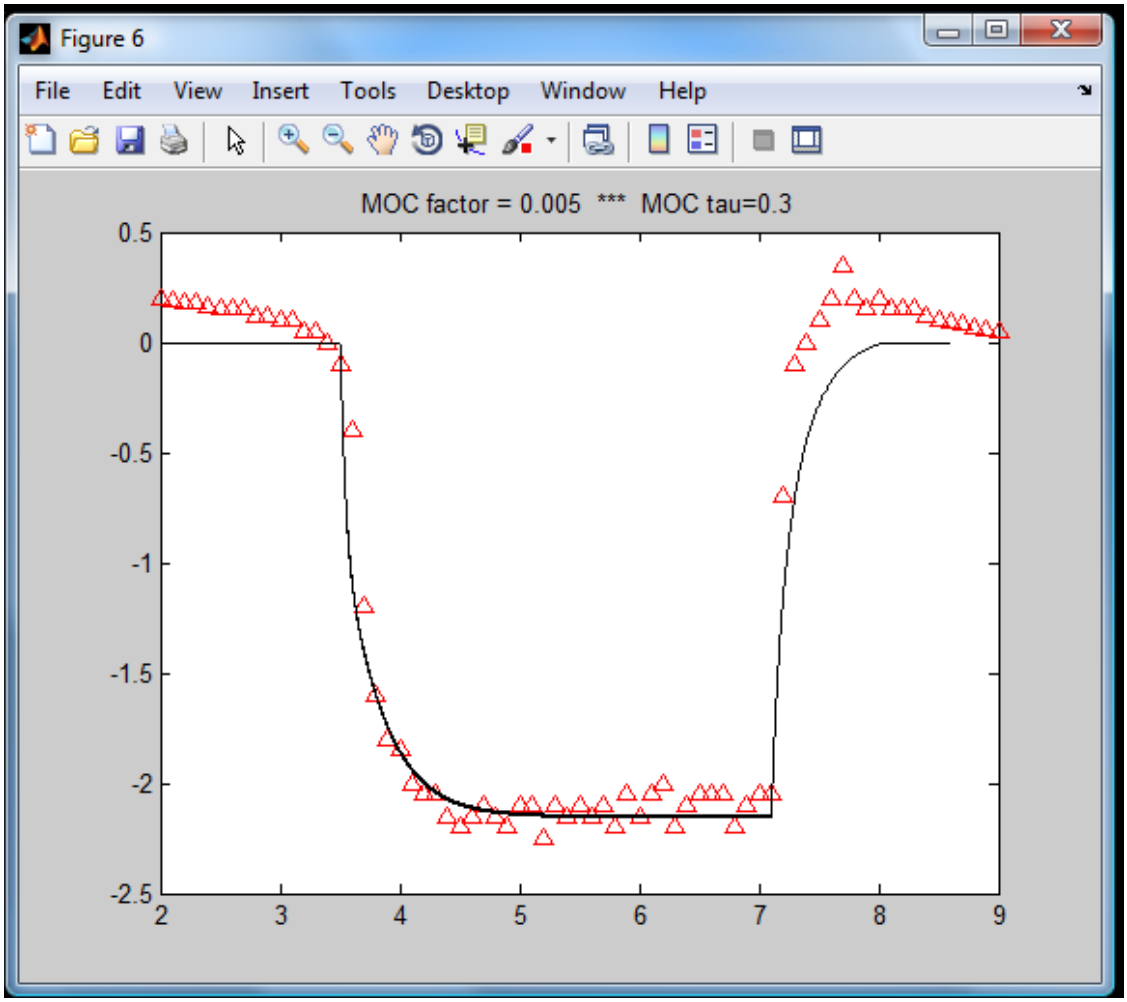


Figure 6
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.3
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

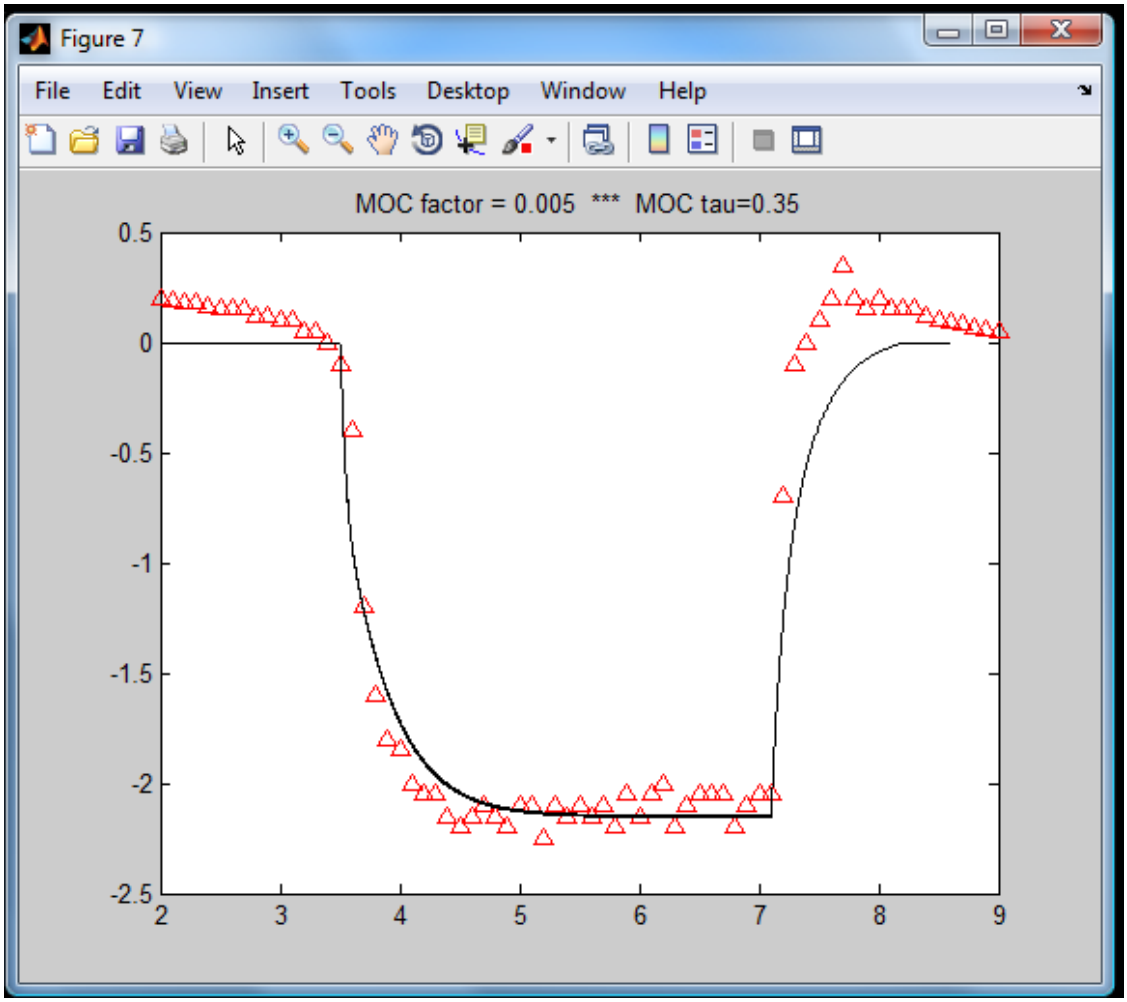


Figure 7
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.35
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

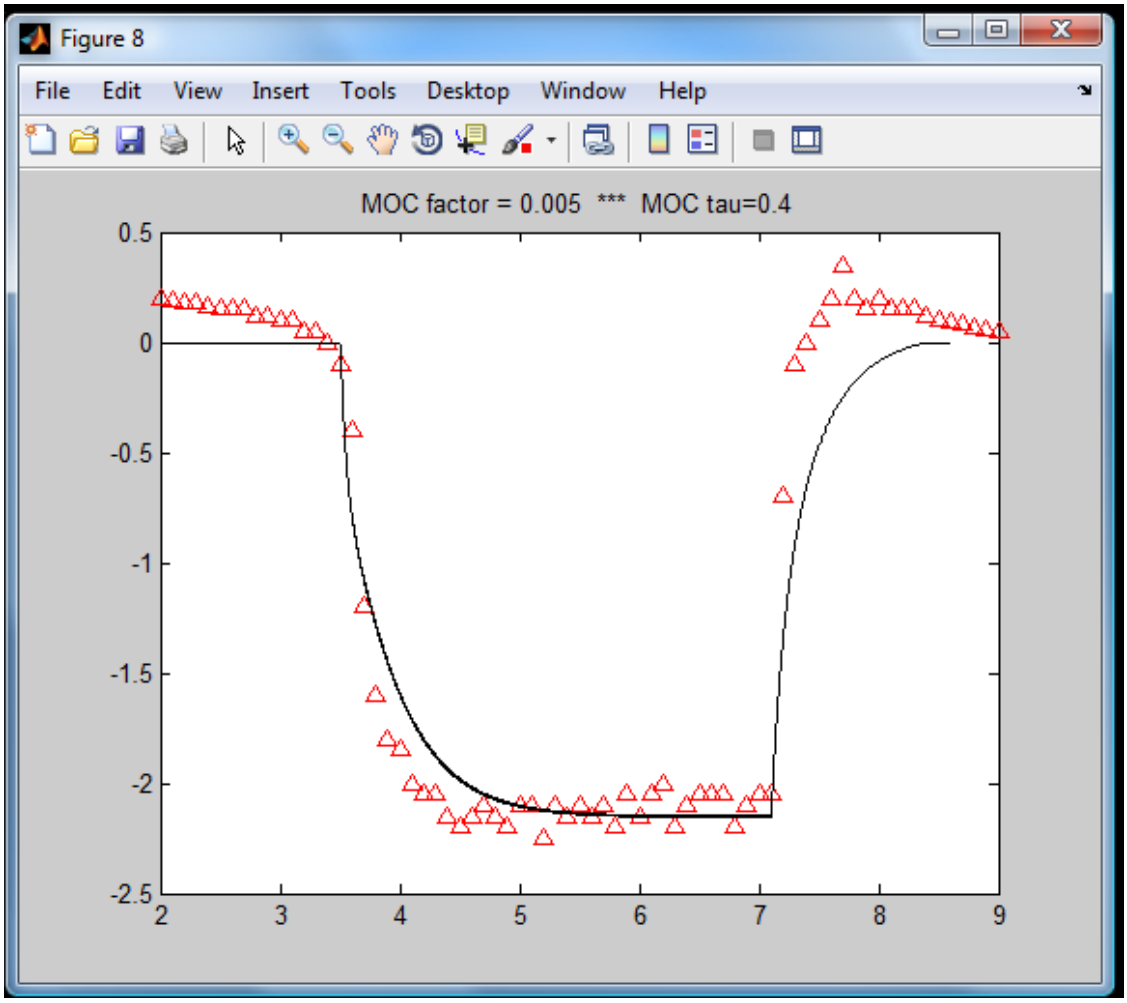


Figure 8
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.4
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

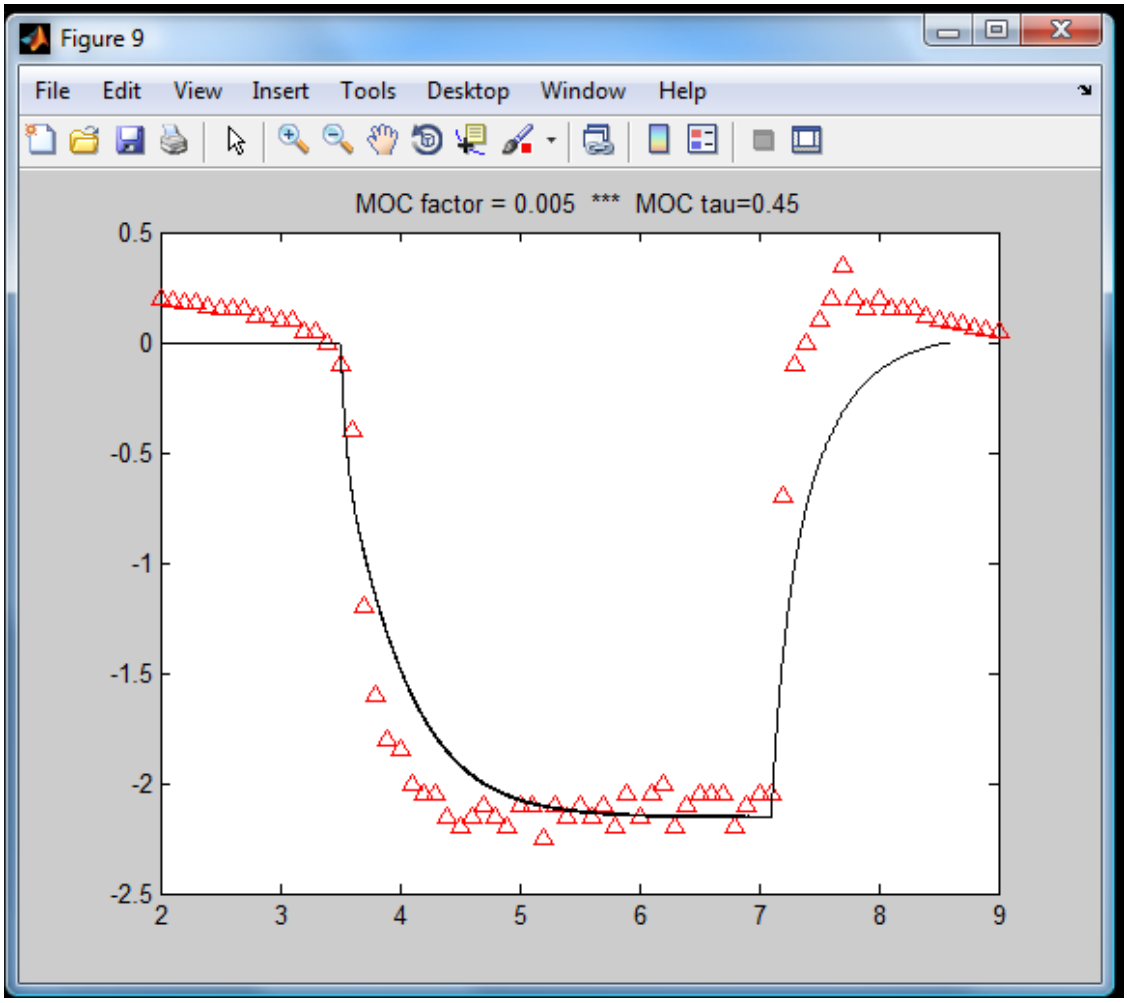


Figure 9
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.45
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

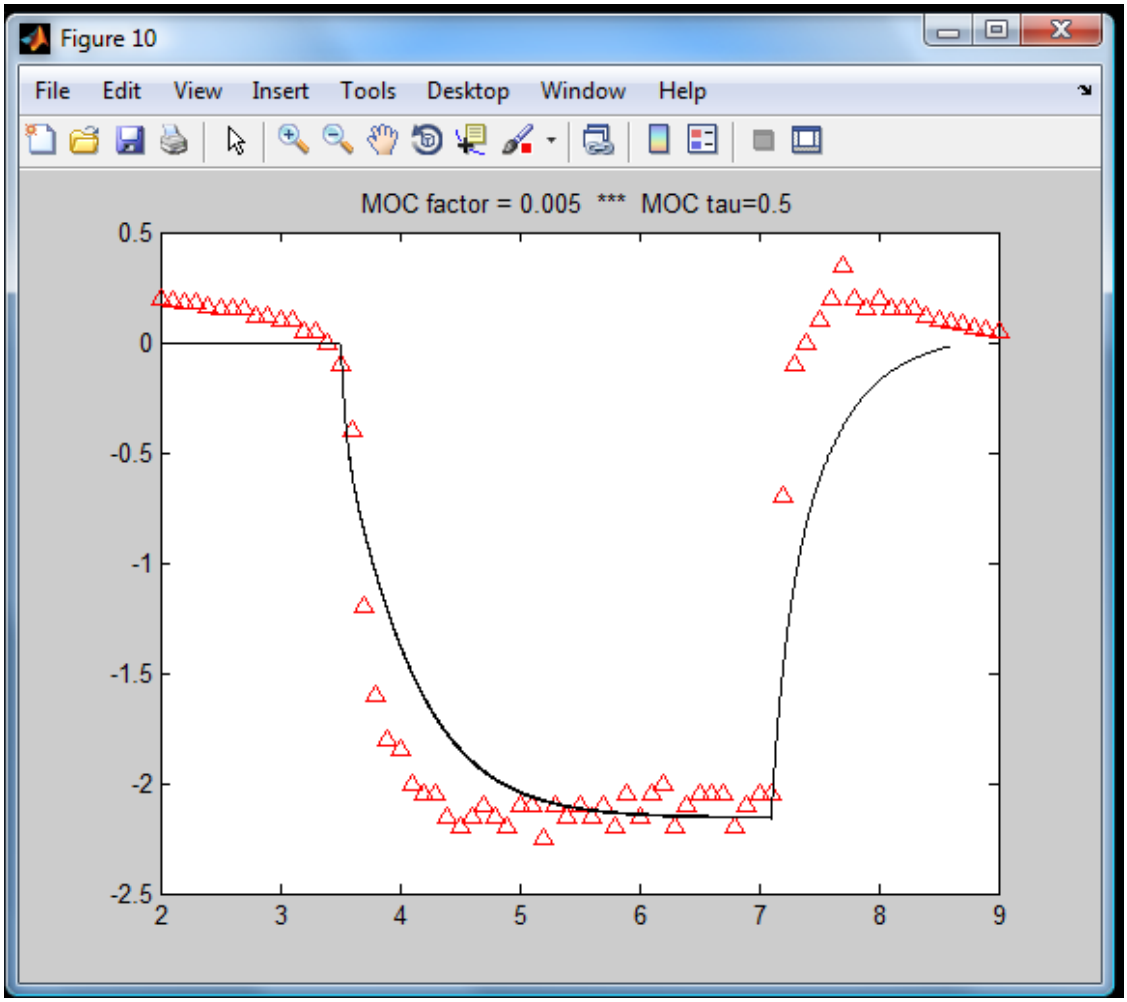


Figure 10
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.005 *** MOC tau=0.5
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

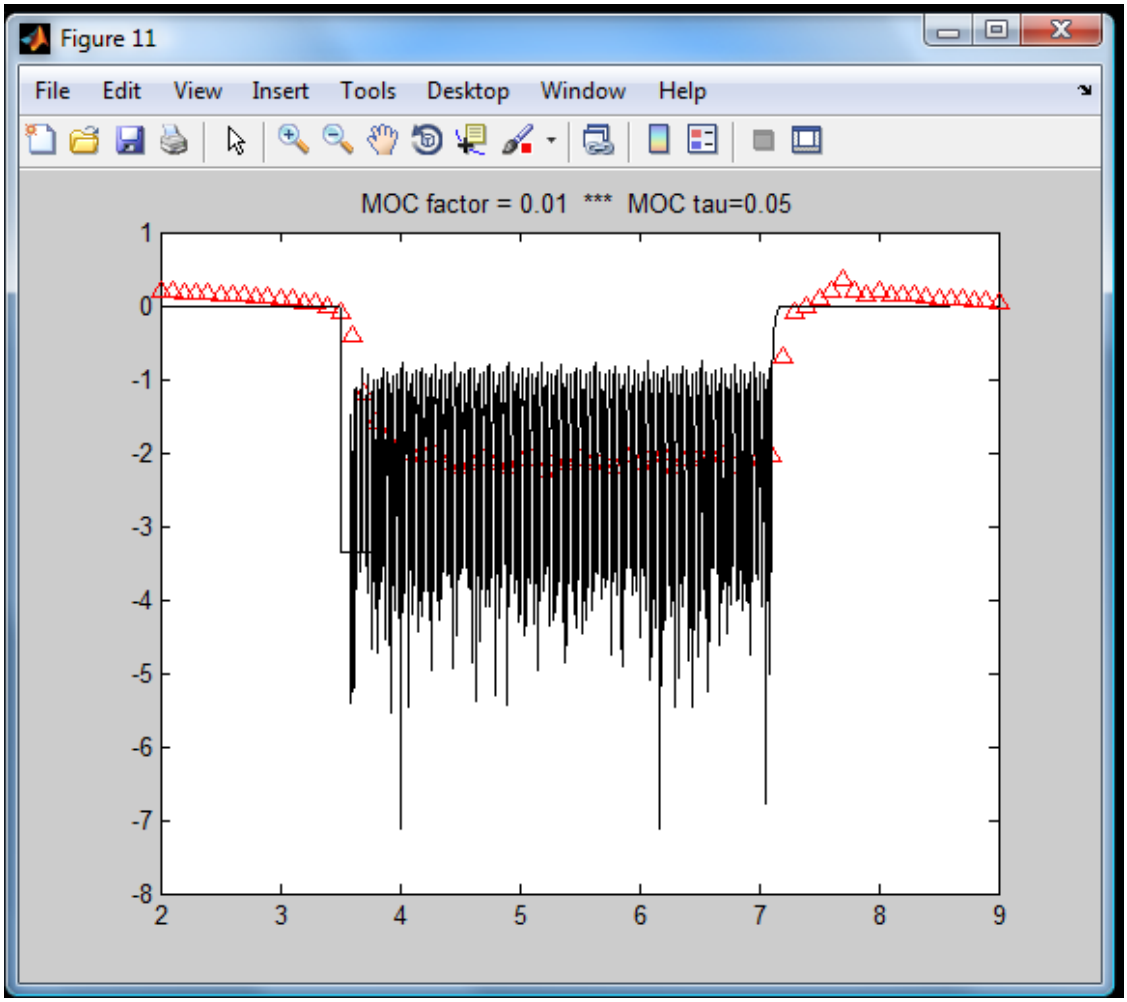


Figure 11
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.05
1
0
-1
-2
-3
-4
-5
-6
-7
-8
2
3
4
5
6
7
8
9

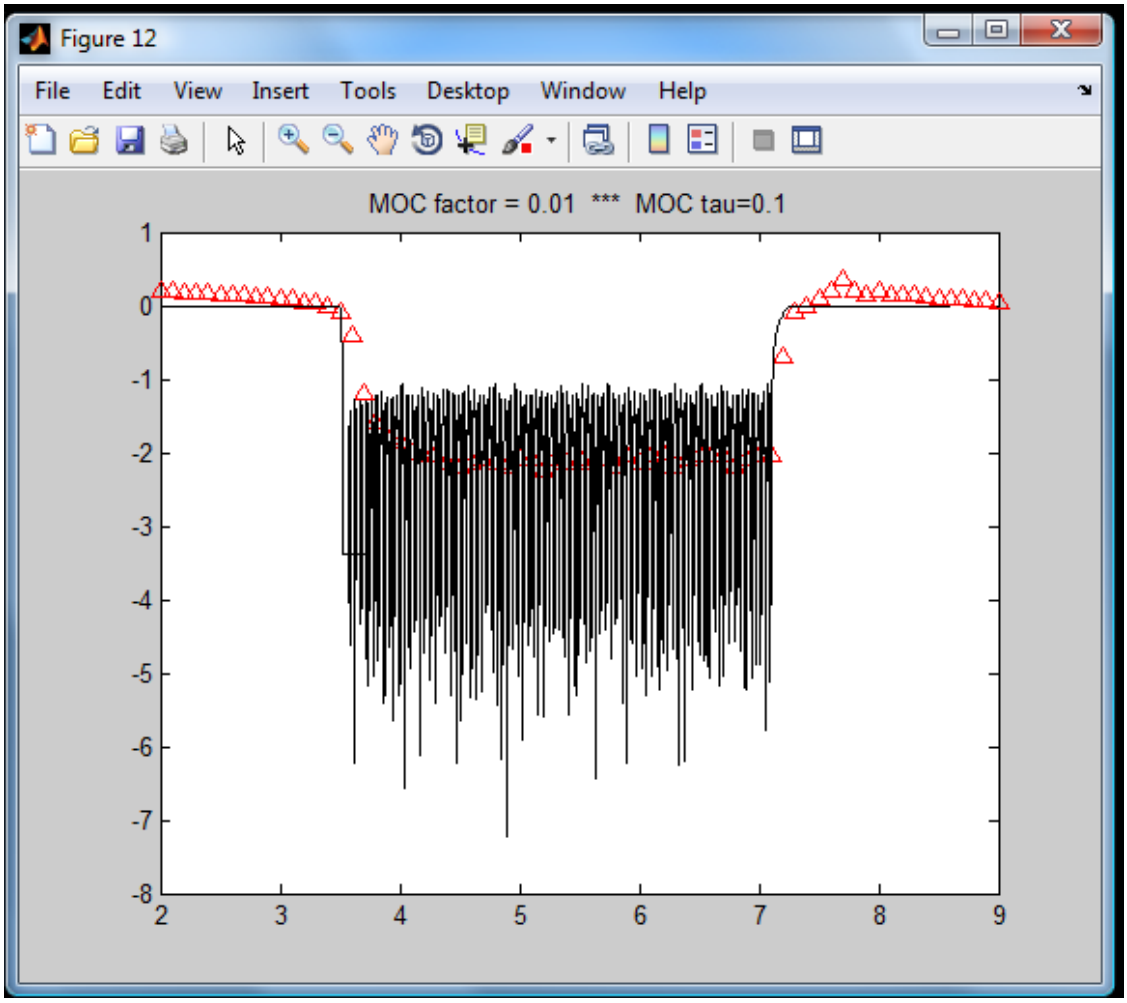


Figure 12
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.1
1
0
-1
-2
-3
-4
-5
-6
-7
-8
2
3
4
5
6
7
8
9

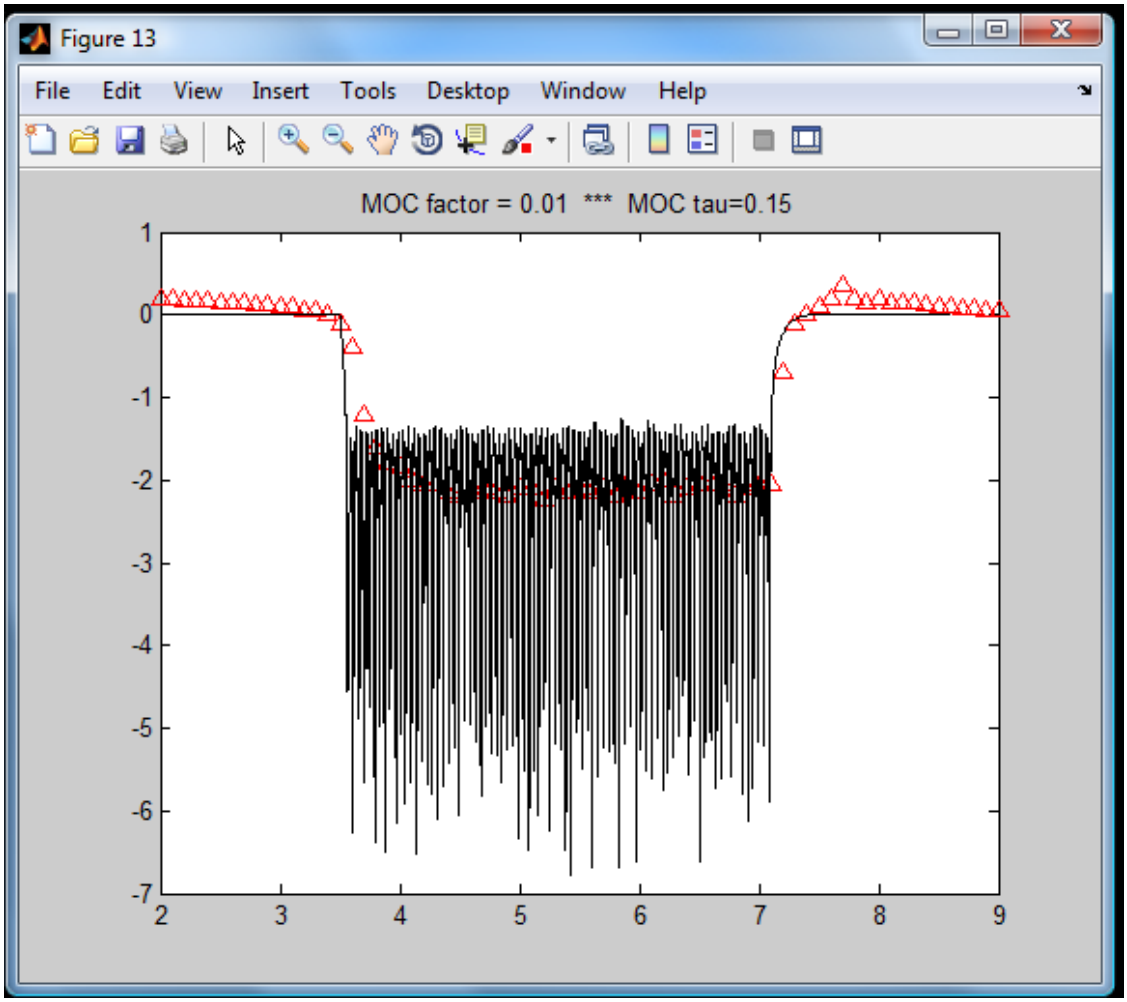


Figure 13
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.15
1
0
-1
-2
-3
-4
-5
-6
-7
2
3
4
5
6
7
8
9

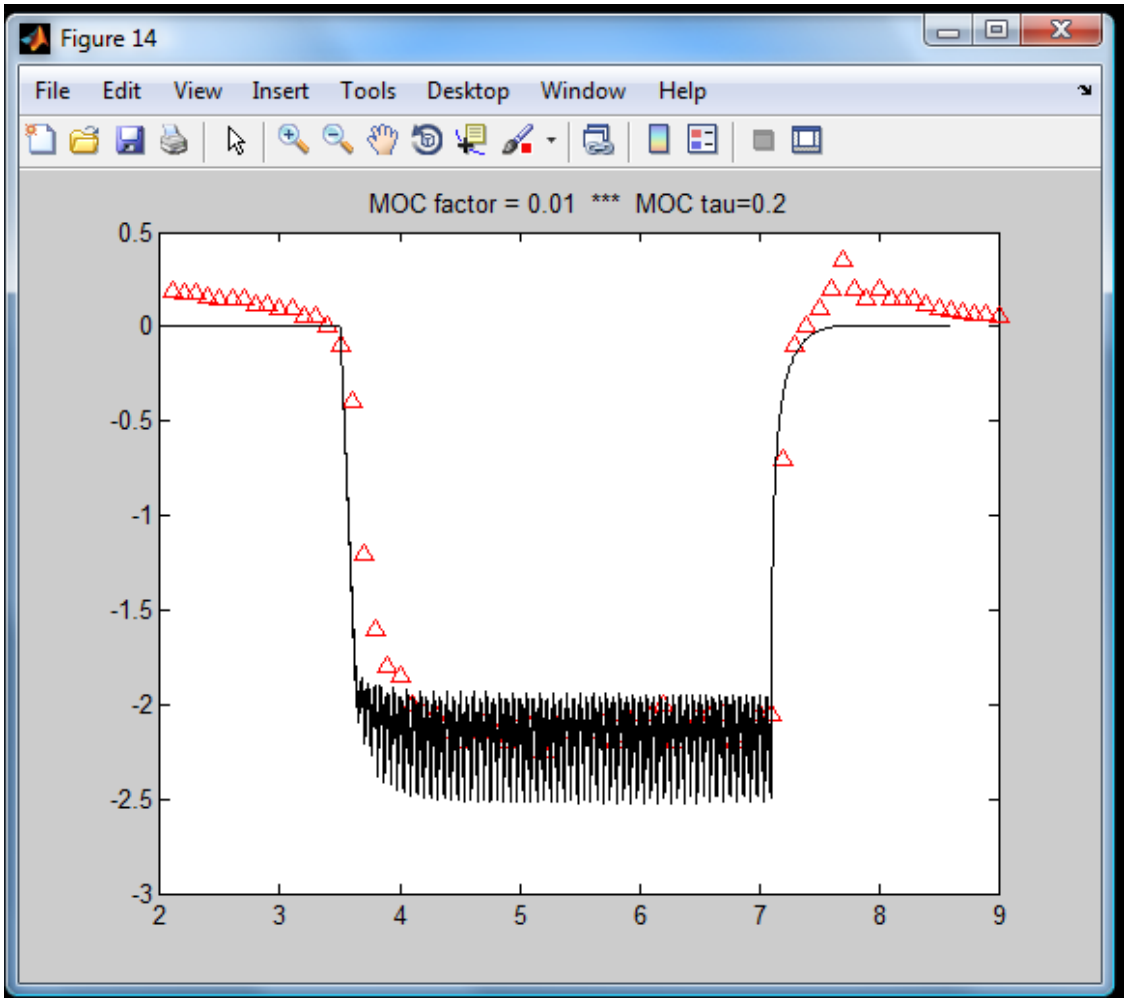


Figure 14
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.2
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
2
3
4
5
6
7
8
9

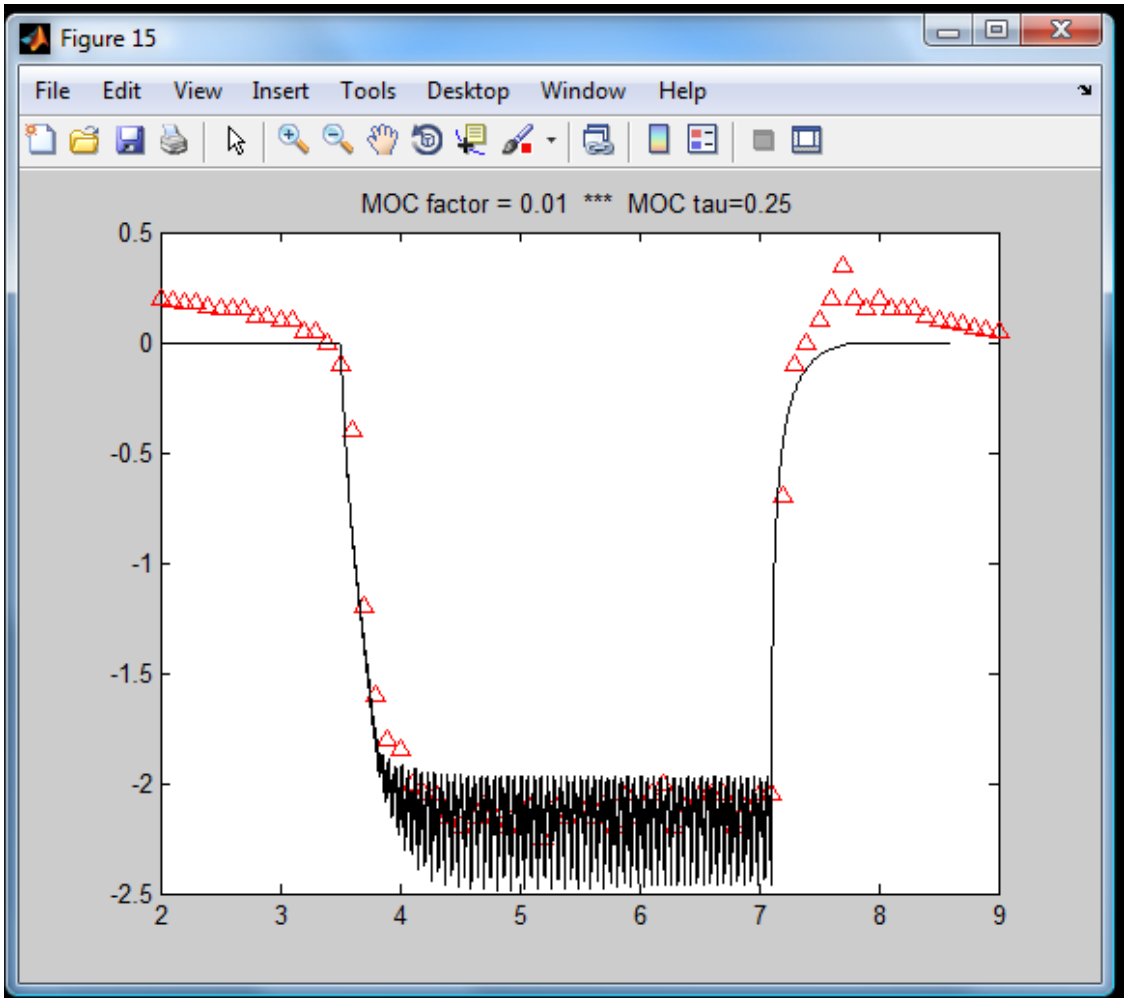


Figure 15
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.25
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

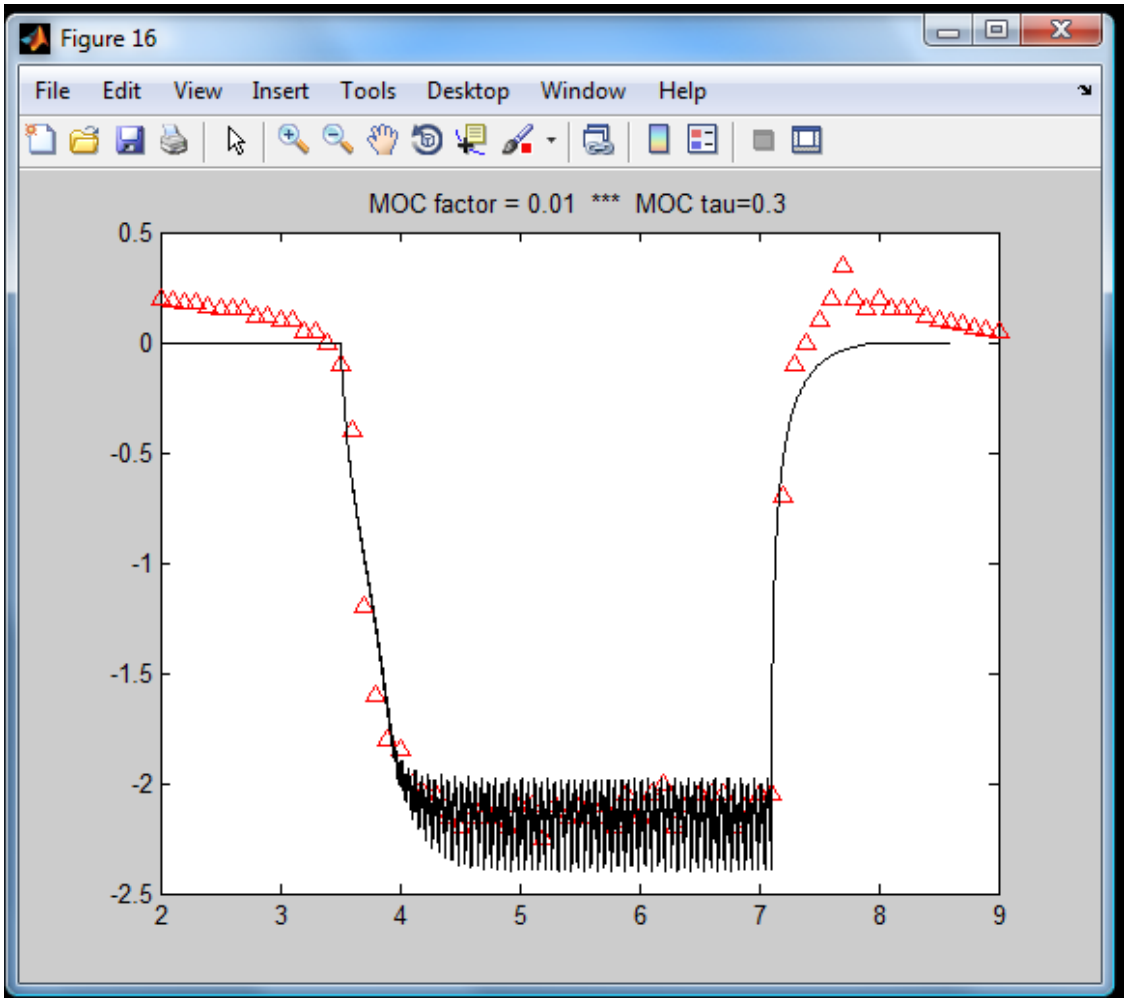


Figure 16
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.3
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

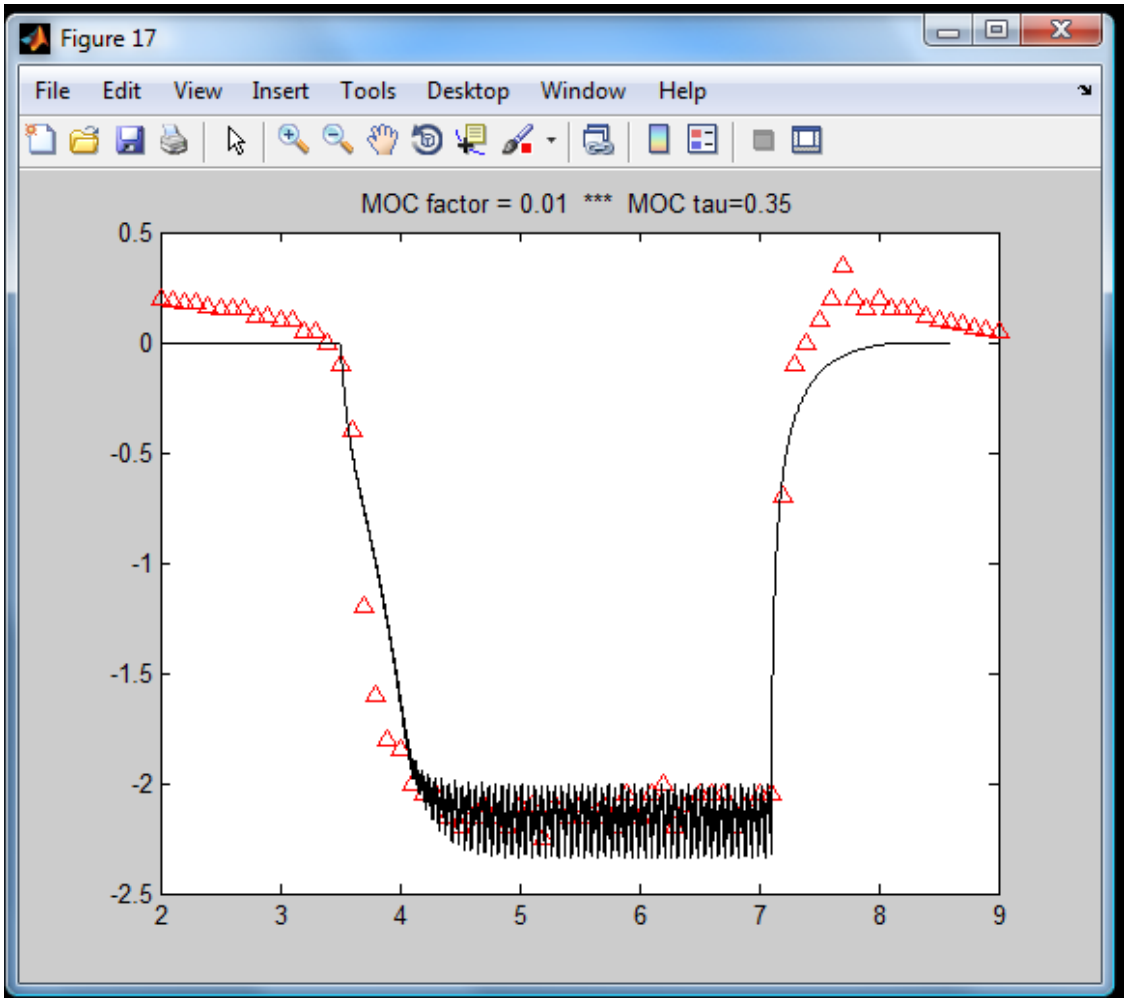


Figure 17
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.35
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

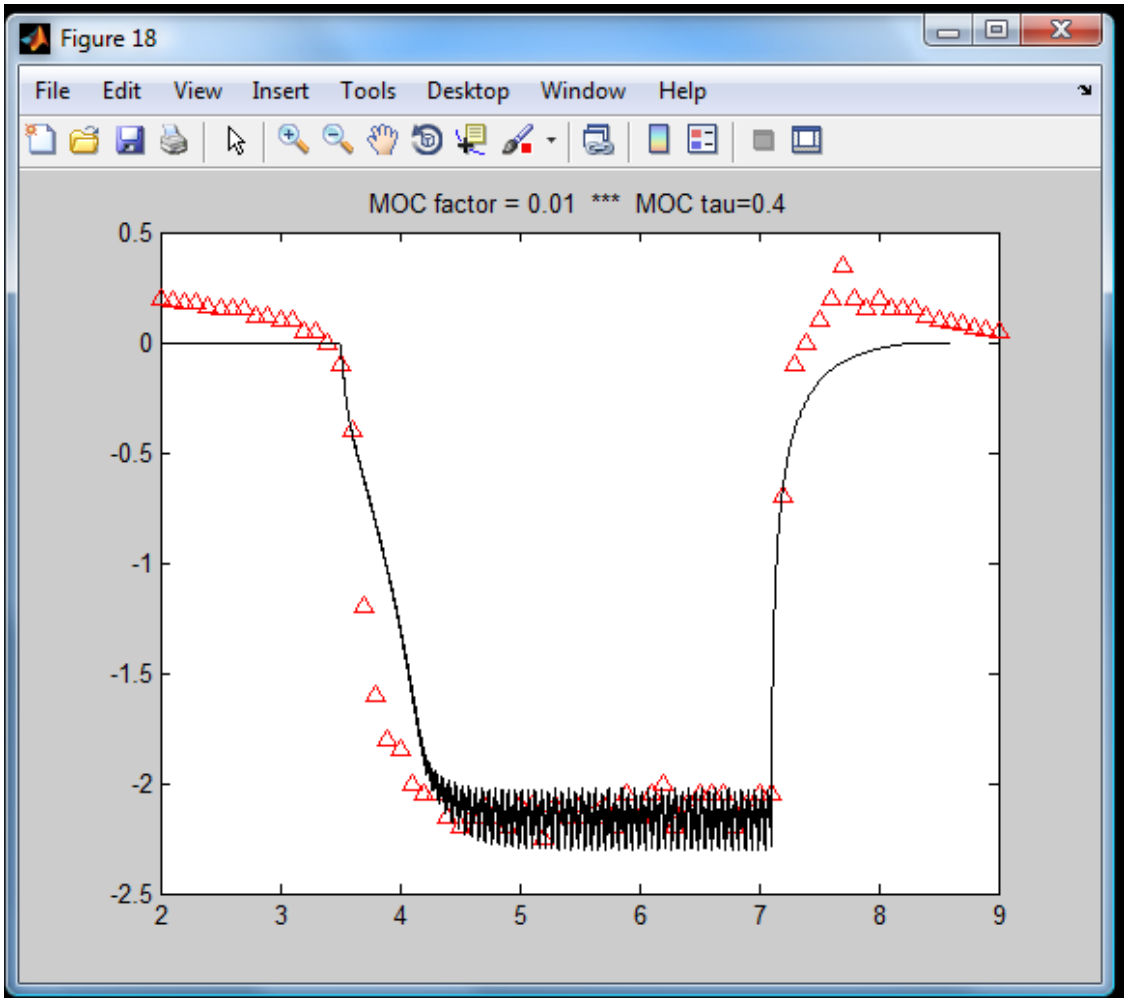


Figure 18
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.4
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

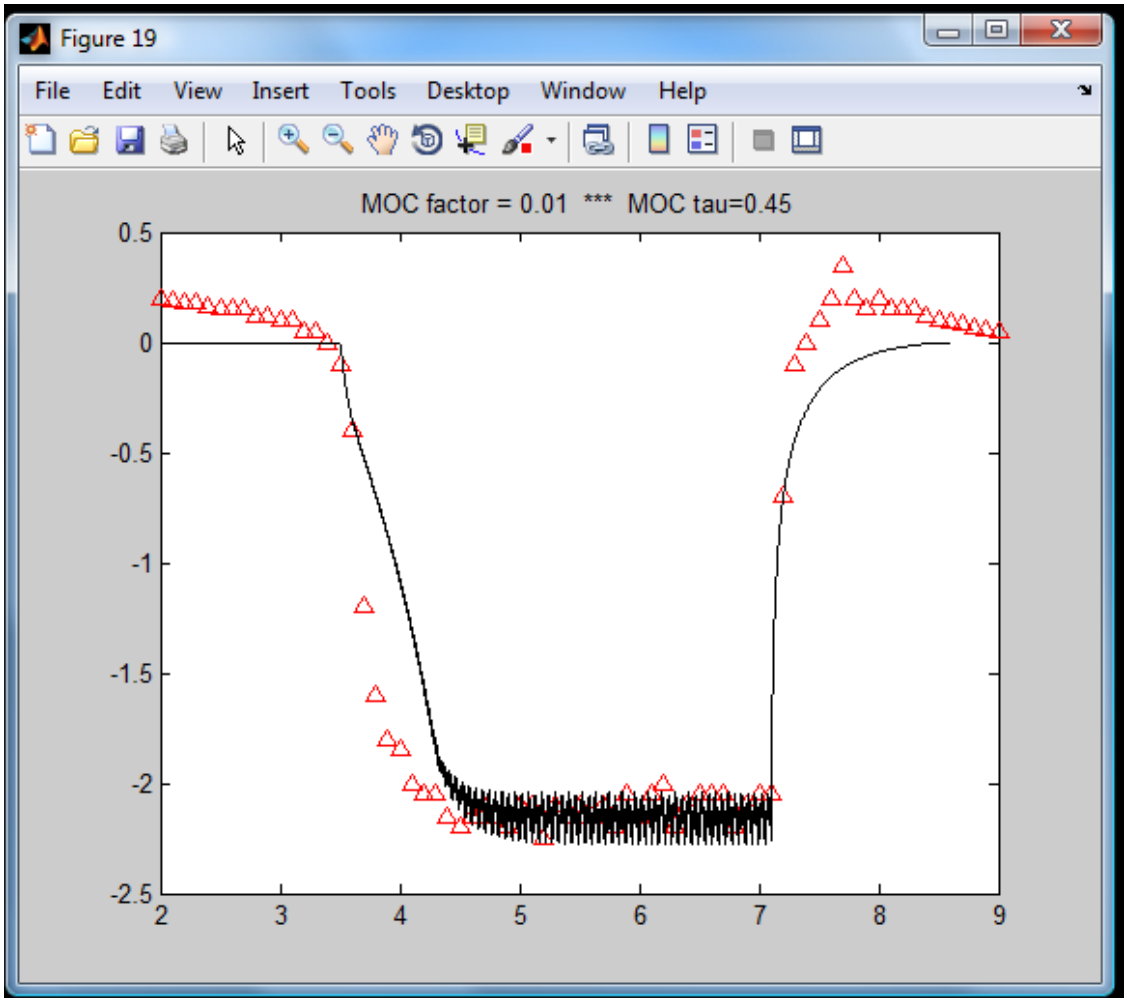


Figure 19
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.45
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

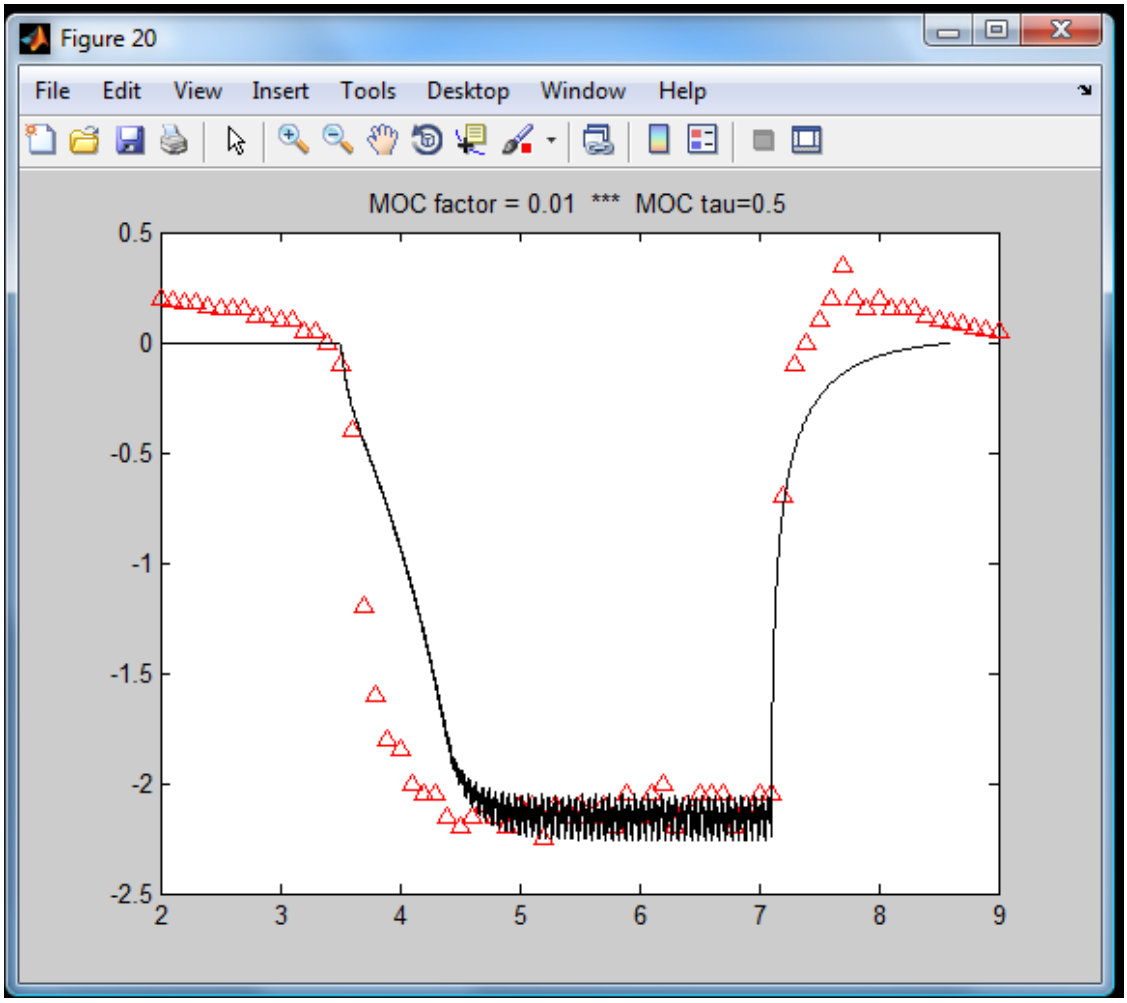


Figure 20
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.01 *** MOC tau=0.5
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

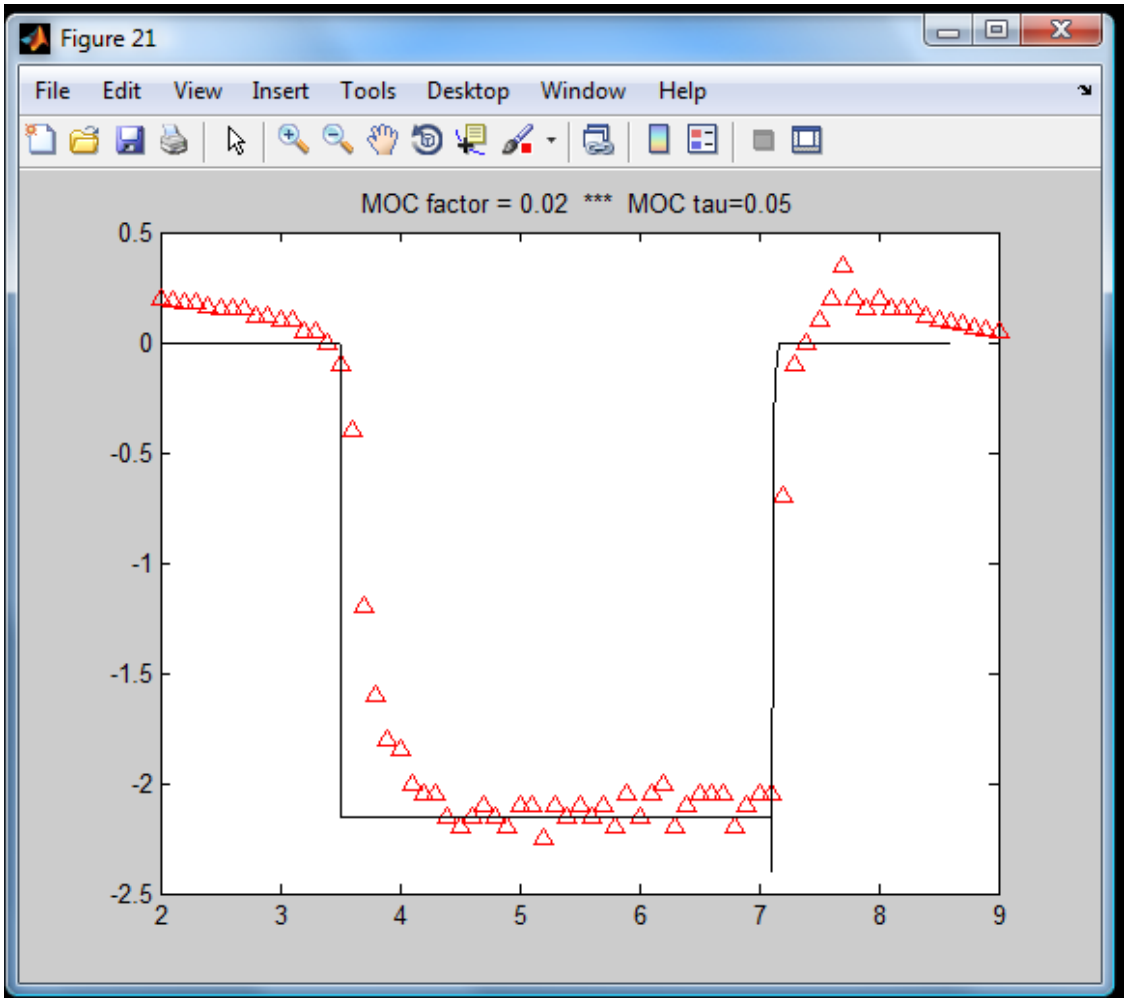


Figure 21
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.05
0.5
0
-0.5
-1
-1.5
-2
-2.5
2
3
4
5
6
7
8
9

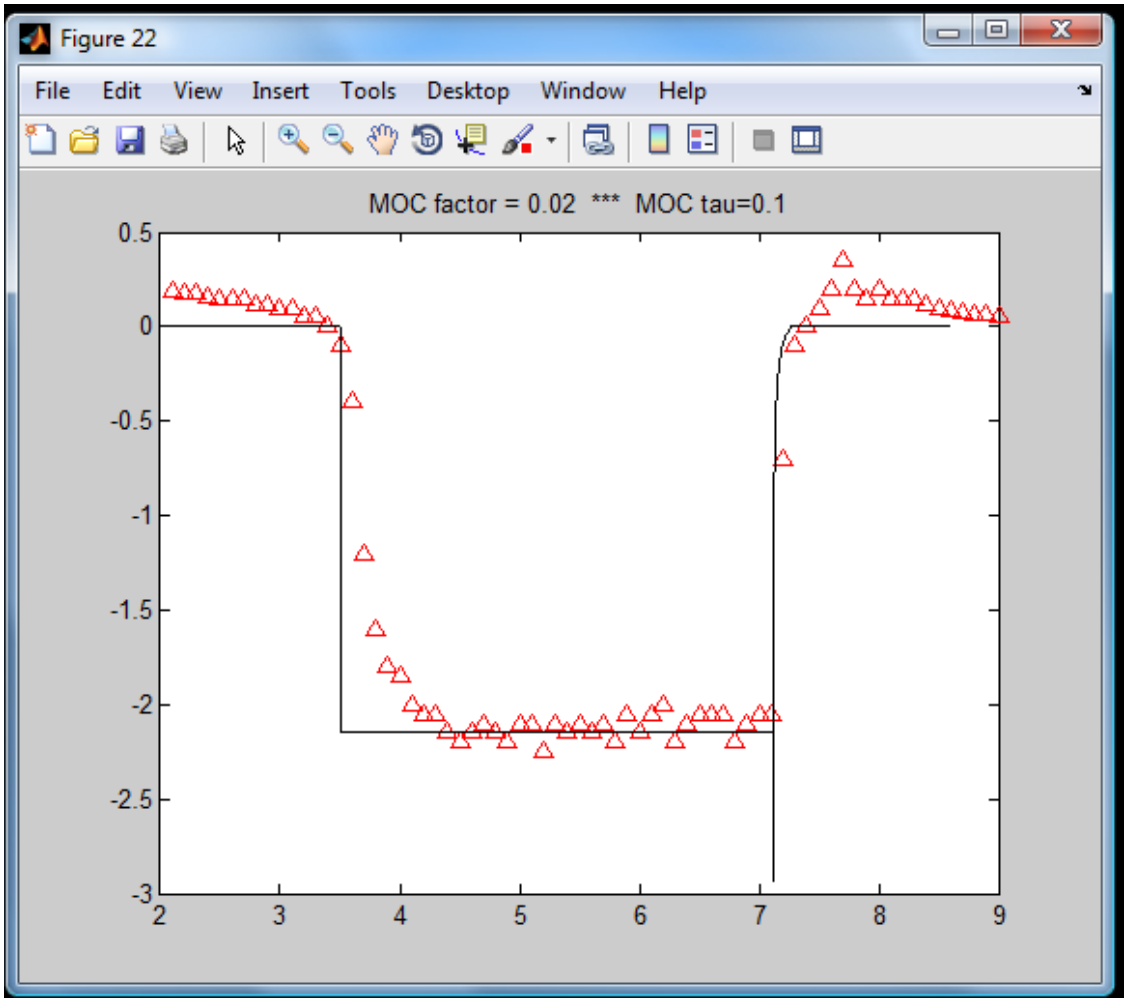


Figure 22
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.1
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
2
3
4
5
6
7
8
9

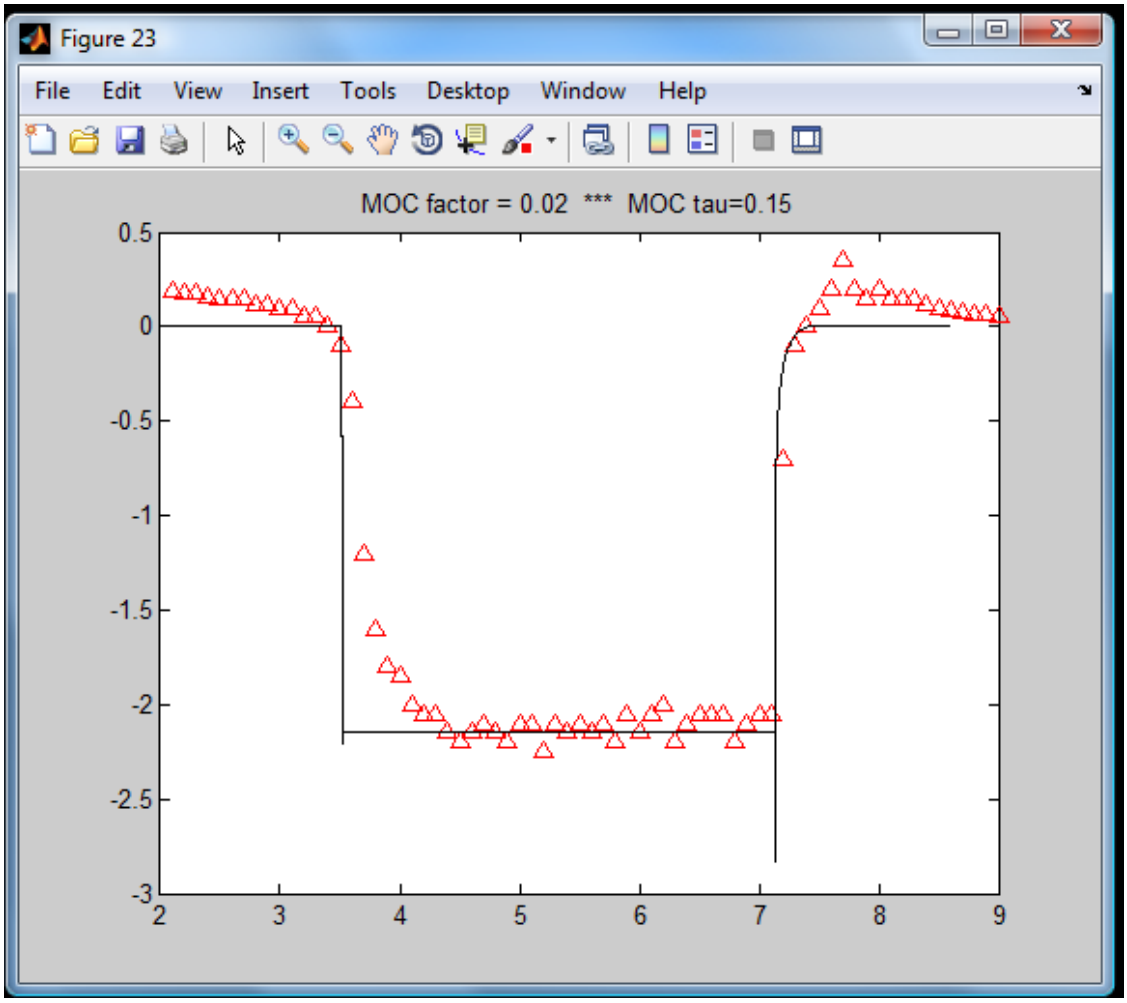


Figure 23
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.15
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
2
3
4
5
6
7
8
9

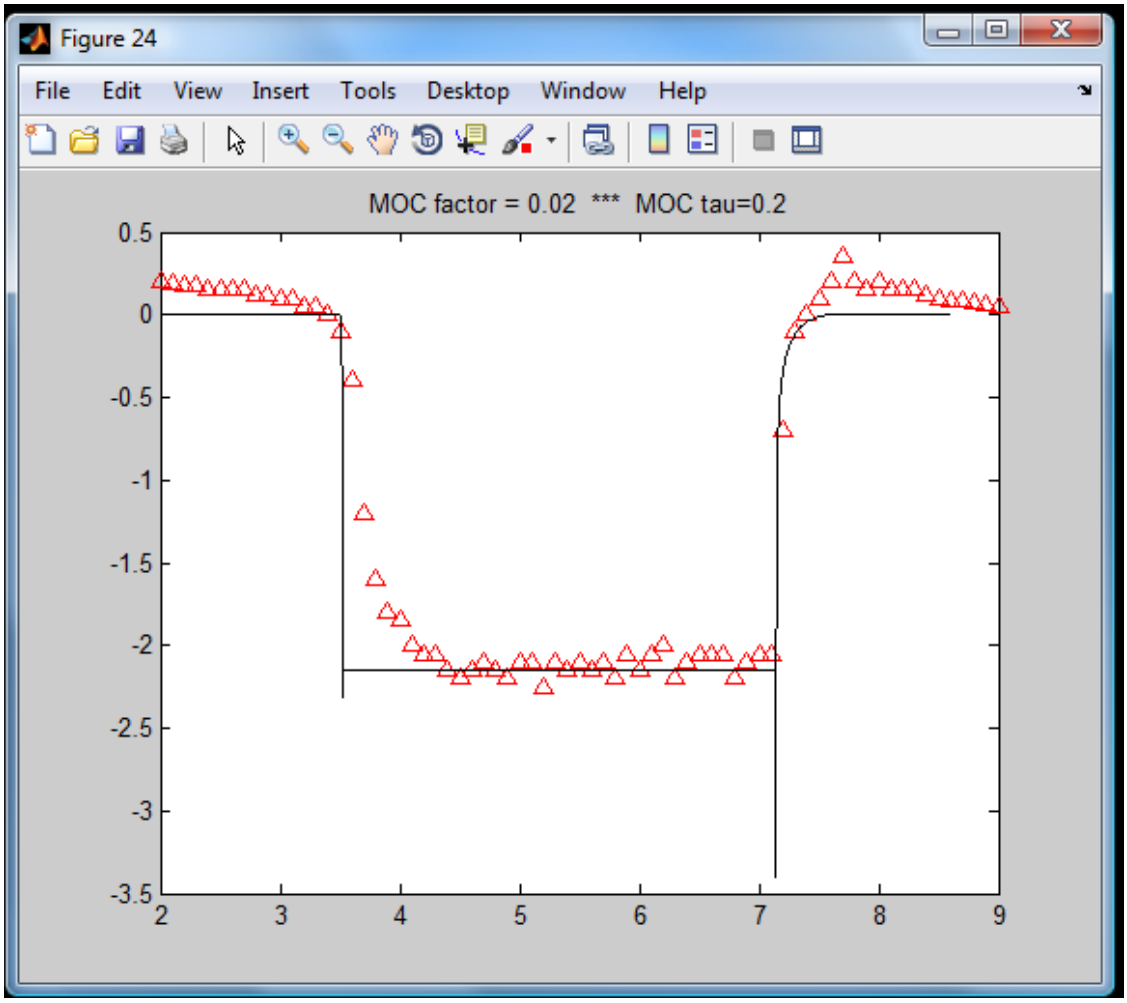


Figure 24
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.2
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
2
3
4
5
6
7
8
9

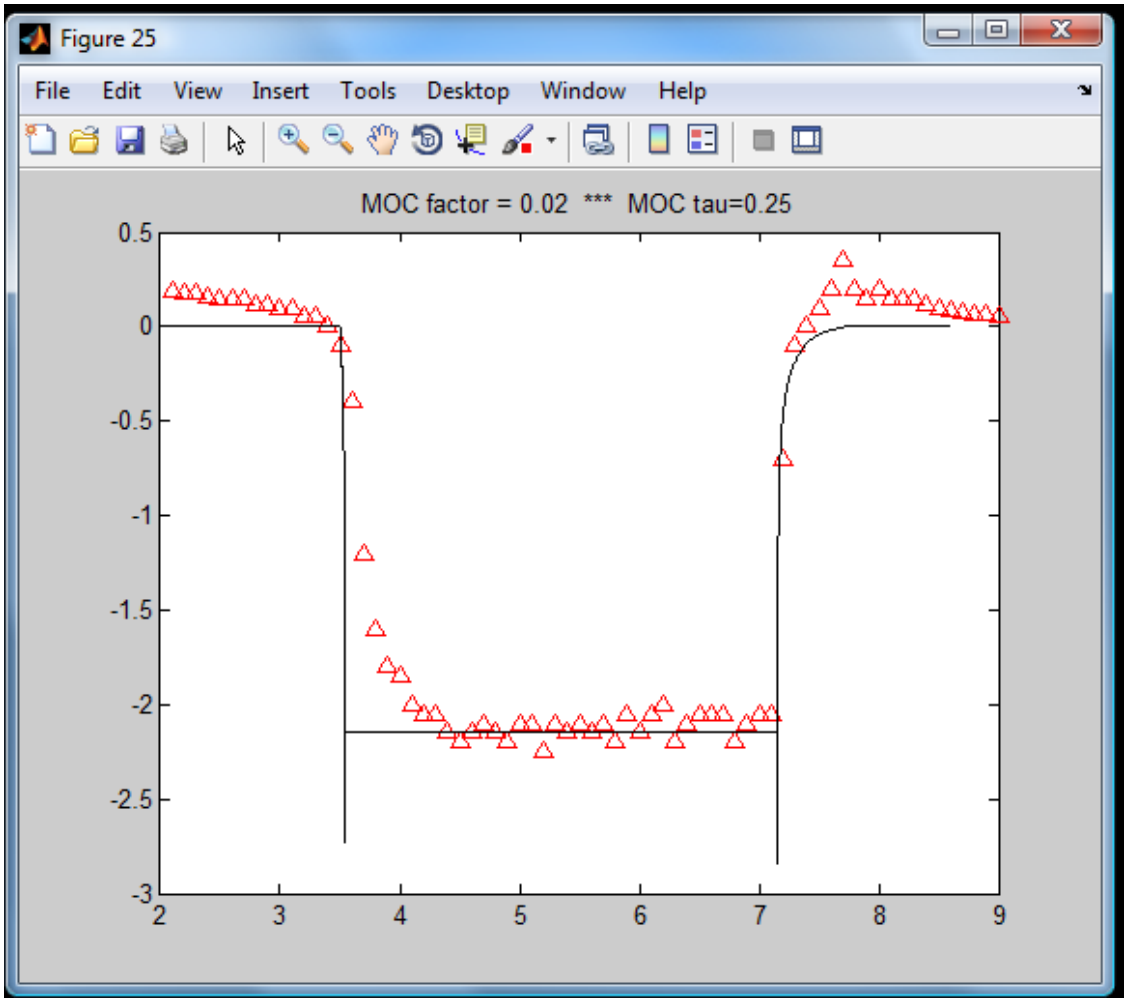


Figure 25
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.25
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
2
3
4
5
6
7
8
9

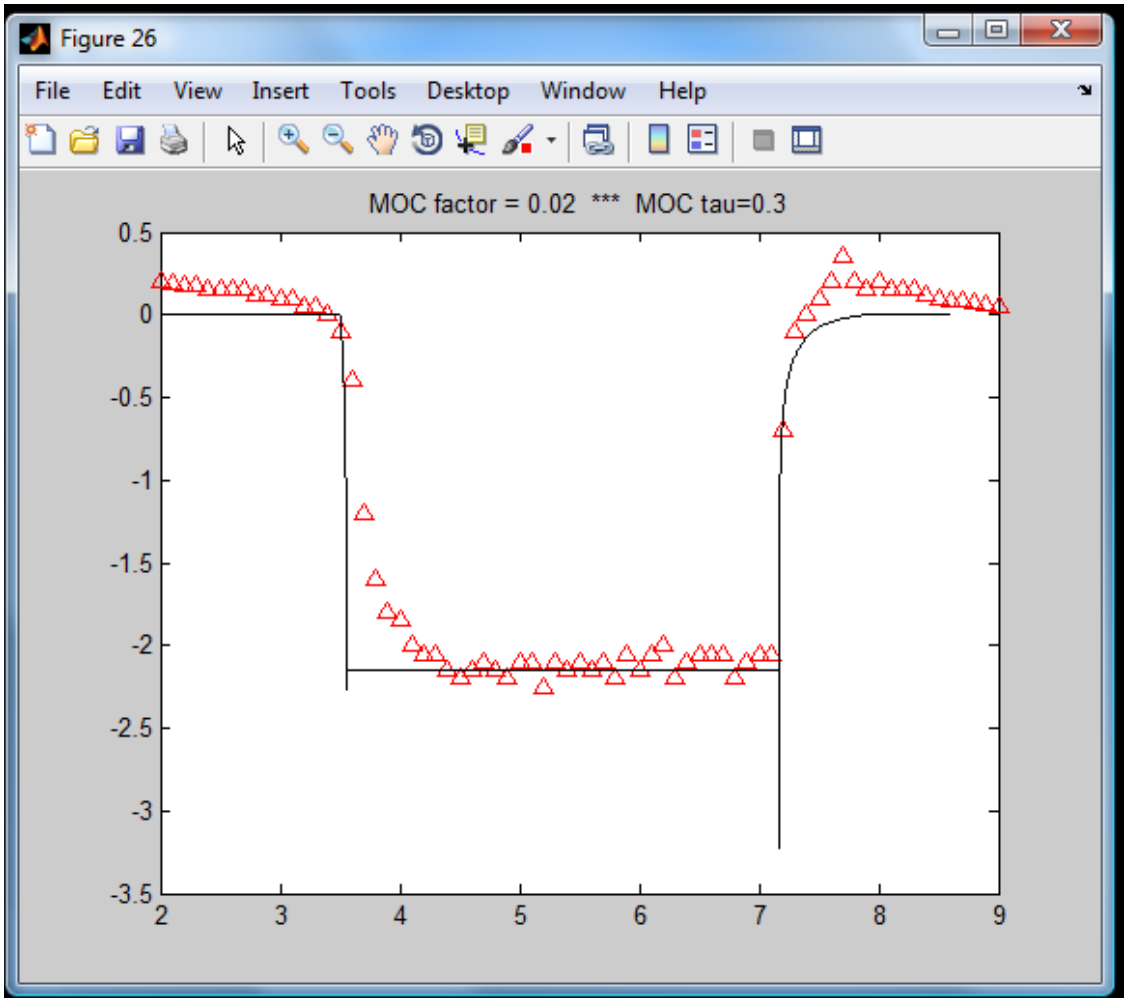


Figure 26
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.3
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
2
3
4
5
6
7
8
9

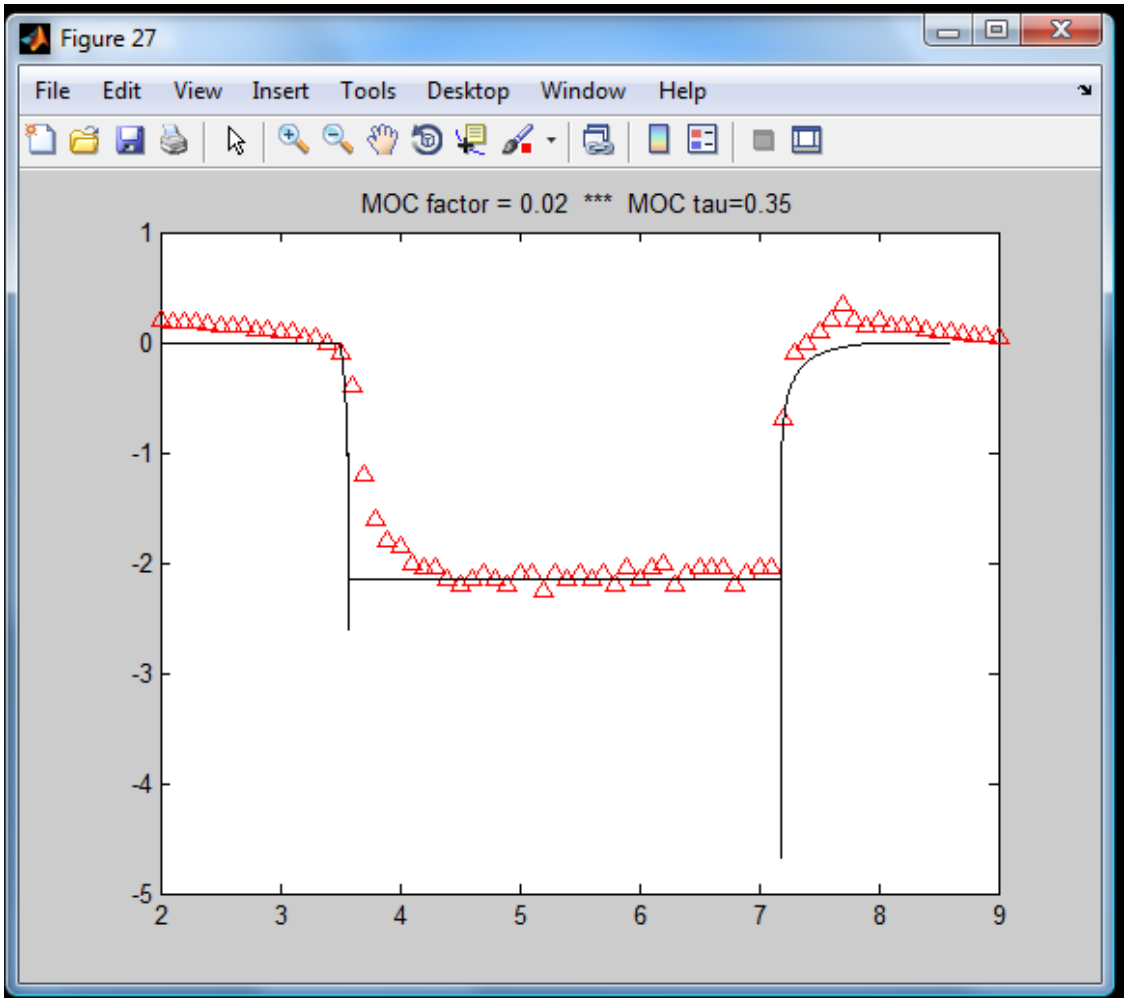


Figure 27
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.35
1
0
-1
-2
-3
-4
-5
2
3
4
5
6
7
8
9

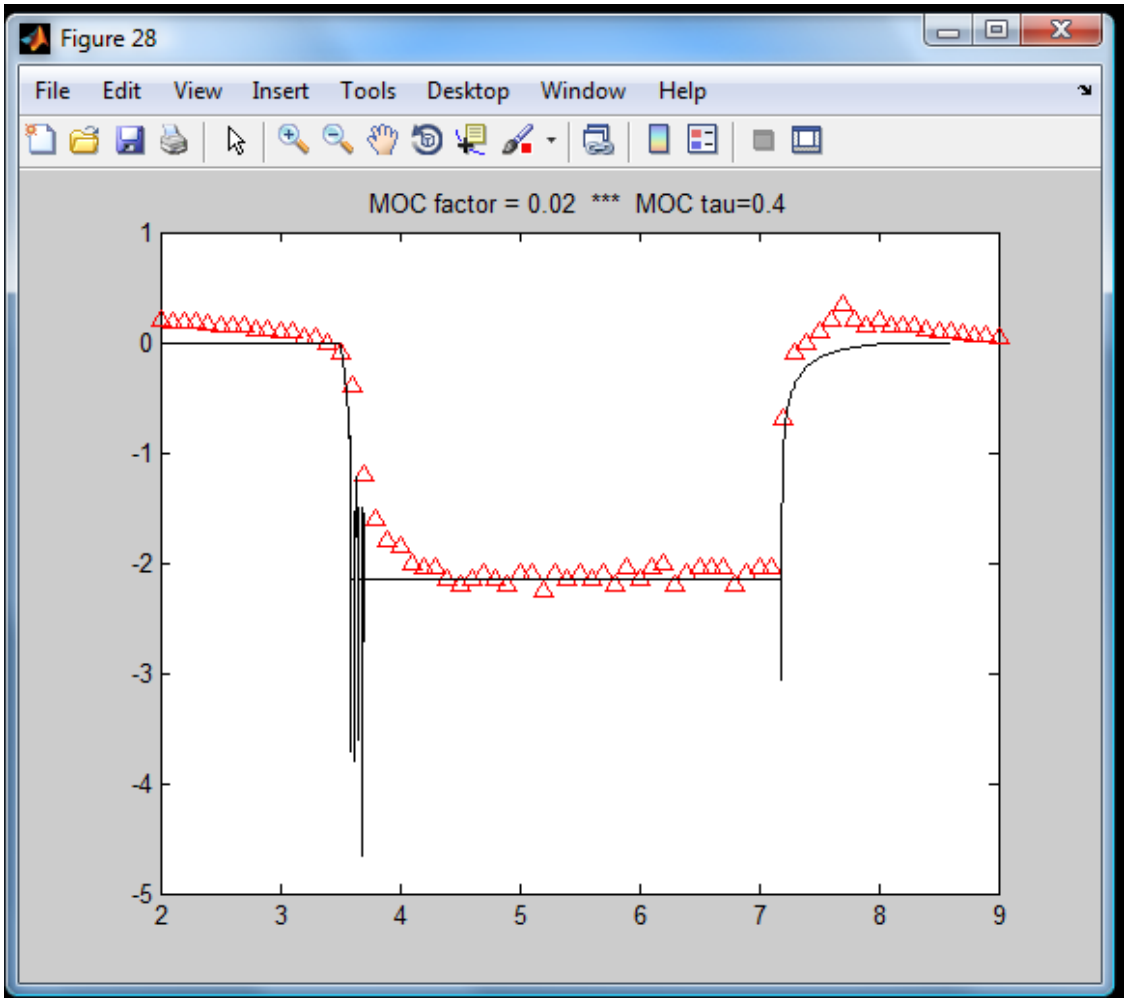


Figure 28
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.4
1
0
-1
-2
-3
-4
-5
2
3
4
5
6
7
8
9

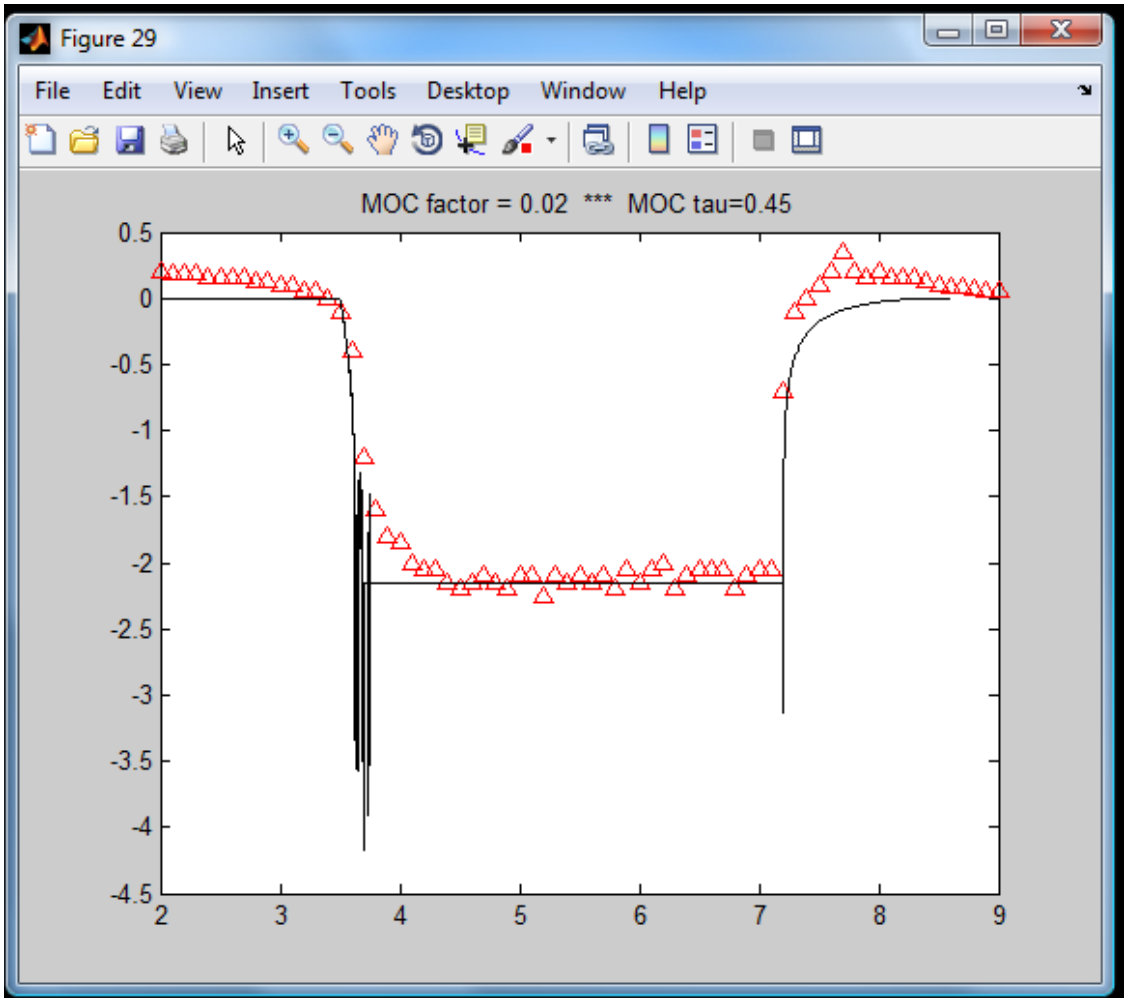
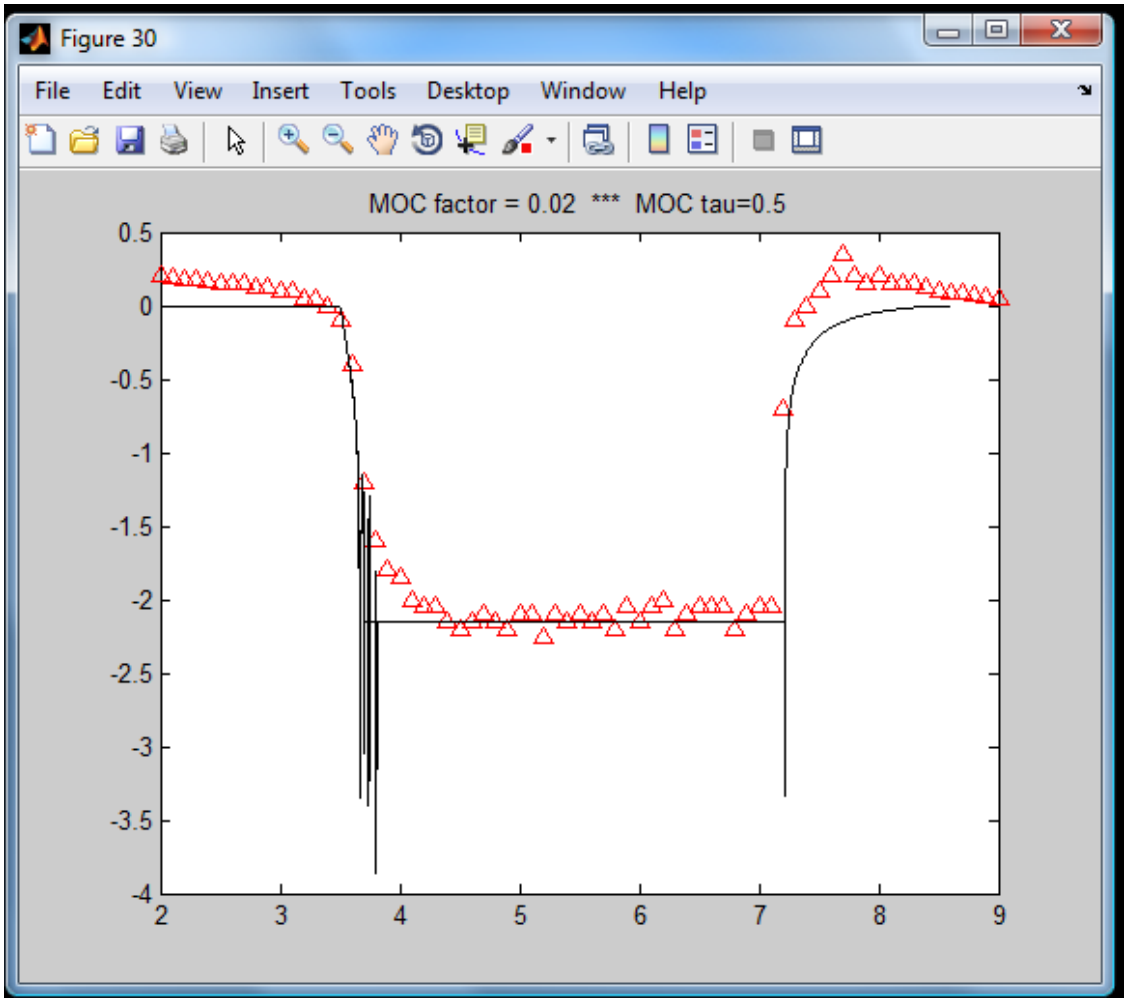


Figure 29
File Edit View Insert Tools Desktop Window Help
MOC factor = 0.02 *** MOC tau=0.45
0.5
0
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
2
3
4
5
6
7
8
9



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