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Common

```
clear all
ltpda_startup
% server
%rserverDAQ = 'fb';
rserverDAQ = 'fb';
%rserverDAQ = '130.75.117.159';

*** Deleting repository manager
- closing repository connections
Warning: Objects of 'onCleanup' class exist.
Cannot clear this class or any of its
super-classes.
Warning: Objects of pidpack.PIDMasks class
exist - not clearing this class
or any of its super-classes
Loading LTPDA preferences from /home/controls/.matlab/R2010b/ltpda_prefs2.xml ...
LWB: Saving preferences to /home/controls/.matlab/R2010b/ltpda_prefs2.xml
* installing extensions under /cvs/cds/caltech/apps/linux64/NDS_Client ...
Warning: Function
/opt/rtdcds/caltech/c1/userapps/trunk/cds/common/models/bitget.mdl
has the same name as a MATLAB builtin. We
suggest you rename the function to avoid a
potential name conflict.
Warning: Function
/opt/rtdcds/caltech/c1/userapps/release/cds/common/models/bitget.mdl
has the same name as a MATLAB builtin. We
suggest you rename the function to avoid a
potential name conflict.
Warning: Name is nonexistent or not a
directory:
/cvs/cds/caltech/apps/linux64/NDS_Client/classes.
Warning: Function
/opt/rtdcds/caltech/c1/userapps/trunk/cds/common/models/bitget.mdl
has the same name as a MATLAB builtin. We
suggest you rename the function to avoid a
potential name conflict.
Warning: Function
/opt/rtdcds/caltech/c1/userapps/release/cds/common/models/bitget.mdl
has the same name as a MATLAB builtin. We
suggest you rename the function to avoid a
potential name conflict.
Warning: Function
/opt/rtdcds/caltech/c1/userapps/trunk/cds/common/models/bitget.mdl
has the same name as a MATLAB builtin. We
suggest you rename the function to avoid a
potential name conflict.
Warning: Function
/opt/rtdcds/caltech/c1/userapps/release/cds/common/models/bitget.mdl
has the same name as a MATLAB builtin. We
suggest you rename the function to avoid a
potential name conflict.
+-----+
|
|          ****
|          **
|          -----
|          //  \\
| //  \\ //  \\ //  \\ //  \\
| ** | +---+ | +---+ | **
| *** | | | | | | | | ***
| ** | +---+ | +---+ | **
| //  \\ //  \\ //  \\ //  \\
|          //  \\
|          **
|          ****
|
|      Welcome to the LTPDA Toolbox
|
|      Version: 2.4
|      Release: (R2011a)
|      Date: 16-05-11
|
+-----+
Warning: Objects of 'onCleanup' class exist.
Cannot clear this class or any of its
super-classes.
Warning: Objects of pidpack.PIDMasks class
exist - not clearing this class
or any of its super-classes
Warning: Objects of 'onCleanup' class exist.
Cannot clear this class or any of its
super-classes.
Warning: Objects of pidpack.PIDMasks class
exist - not clearing this class
or any of its super-classes
Warning: Objects of 'onCleanup' class exist.
```

```

Cannot clear this class or any of its
super-classes.
Warning: Objects of pidpack.PIDMasks class
exist - not clearing this class
or any of its super-classes
Loading LTPDA preferences from /home/controls/.matlab/R2010b/ltpda_prefs2.xml ...
LWB: Saving preferences to /home/controls/.matlab/R2010b/ltpda_prefs2.xml
M: Update expiry login time.

```

Get reference

!!! UTC TIMES !!!

```

tref='2011-11-18 23:05:00'; %Standard config
%tref='2011-11-19 03:25:00'; %Testing
ch2='C1:IOO-MC_F_DQ'; %Response channel
nsecs_ref = 240;

plbsRes2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_ref, 'STARTTIMES', tref);
Res2 = ao(plbsRes2);
Res2fft=psd(Res2,plist('scale','ASD','win','Kaiser','Nfft','60*fs')); %Response channel to project to == h during the reference time

M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%

```

MC1 long

```

nsecs_inj = 240;
ch1='C1:SUS-MC1_SUSPOS_OUT_DQ'; %Injection channel

tinj='2011-11-18 22:08:00';

plbsExc1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsRes1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_ref, 'STARTTIMES', tref);
plbsExc2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_ref, 'STARTTIMES', tref);

%Timeseries AO
Res1 = ao(plbsRes1);
Exc1 = ao(plbsExc1);
Exc2 = ao(plbsExc2);

%Resample to 256Hz (same as MC_F)
Exc1=resample(Exc1,plist('fsout',256));
Exc2=resample(Exc2,plist('fsout',256));

Res1fft=psd(Res1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc1fft=psd(Exc1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc2fft=psd(Exc2,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));

%Calculate TF during injection
CouplingMC1L = tfe(Exc1,Res1,plist('win','Kaiser','Nfft','60*fs'));
ProjectionMC1L = CouplingMC1L .* Exc2fft;
ProjectionWMC1L = ProjectionMC1L.setYunits(plist('yunits','V Hz^(-1/2)'));

%Check coherence
iplot(cohere(Res1,Exc1,plist('Nfft','60*fs')),plist('LEGENDS',{'Coherence between injection and response'}));

M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: resampling by 1/1
M: resampling by 1/1
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: computing tfe(resample(C1:SUS-MC1_SUSPOS_OUT_DQ) -> C1:IOO-MC_F_DQ)
M: constructing from data object fsdata
----- ao 01: (TFE(resample(C1:SUS-MC1_SUSPOS_OUT_DQ)->C1:IOO-MC_F_DQ) .* ASD(resample(C1:SUS-MC1_SUSPOS_OUT_DQ))) -----
name: (TFE(resample(C1:SUS-MC1_SUSPOS_OUT_DQ)->C1:IOO-MC_F_DQ) .* ASD(resample(C1:SUS-MC1_SUSPOS_OUT_DQ)))
data: (0,5.63103565230726e-05) (0.0166666666666667,7.48810029814533e-05-i*1.10537968016957e-05) (0.0333333333333333,6.88182354288985e-05-i*8.
----- fsdata 01 -----
fs: 256
x: [7681 1], double
y: [7681 1], double
dx: [0 0], double
dy: [7681 1], double

```

```

xunits: [Hz]
yunits: [V Hz^(-1/2)]
t0: 2011-11-18 22:08:00.000 UTC
navs: 13
-----

```

```

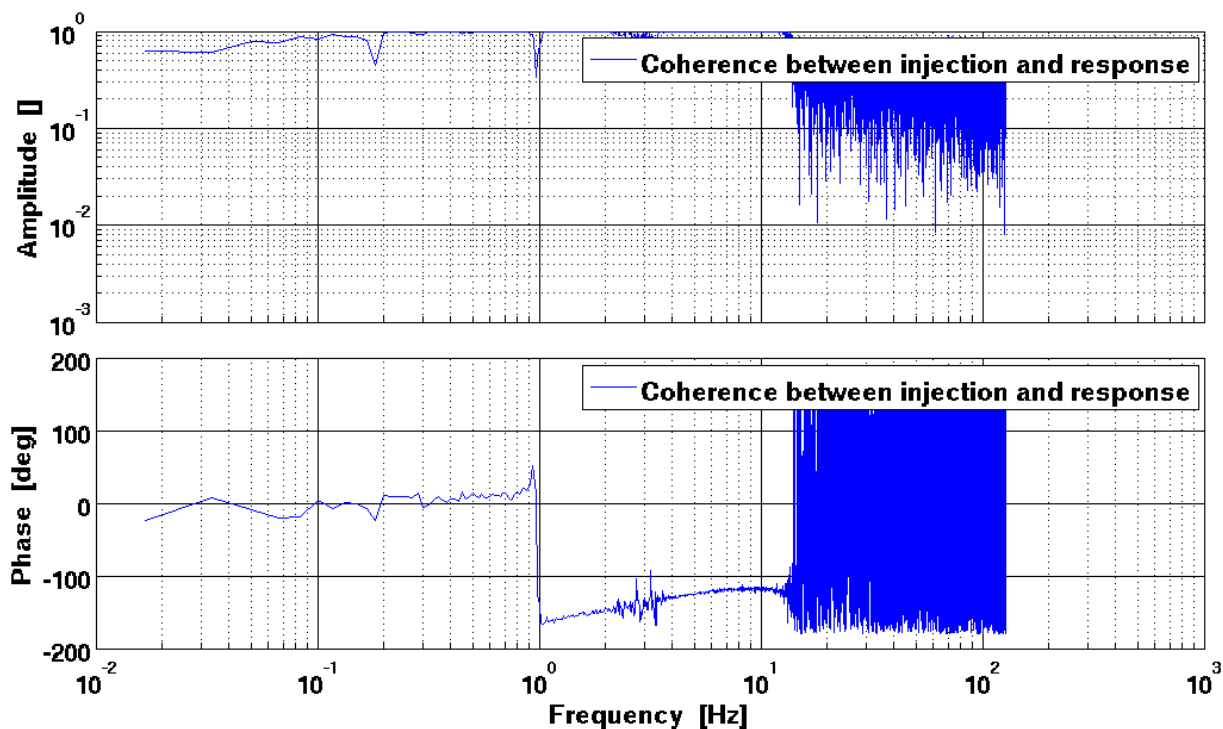
hist: ao / setYunits / $Id: setYunits.m,v 1.27 2011/05/09 22:08:15 mauro Exp $
description:
  UUID: f40247f4-02da-4249-a534-df9945df8a40
-----

```

```

M: setting Nfft to 60*fs = 15360
M: reset window to Hanning(15360)
M: using default overlap of 50.0%
M: computing cohere(C1:I00-MC_F_DQ -> resample(C1:SUS-MC1_SUSPOS_OUT_DQ))
M: constructing from data object fsdata

```



MC2 long

```

nsecs_inj = 240;
ch1='C1:SUS-MC2_SUSPOS_OUT_DQ'; %Injection channel

tinj='2011-11-18 22:26:00';

plbsExc1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsRes1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsExc2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_ref, 'STARTTIMES', tref);

%Timeseries A0
Res1 = ao(plbsRes1);
Exc1 = ao(plbsExc1);
Exc2 = ao(plbsExc2);

%Resample to 256Hz (same as MC_F)
Exc1=resample(Exc1,plist('fsout',256));
Exc2=resample(Exc2,plist('fsout',256));

Res1fft=psd(Res1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc1fft=psd(Exc1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc2fft=psd(Exc2,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));

%Calculate TF during injection
CouplingMC2L = tfe(Exc1,Res1,plist('win','Kaiser','Nfft','60*fs'));
ProjectionMC2L = CouplingMC2L .* Exc2fft;
ProjectionMC2L = ProjectionMC2L.setYunits(plist('yunits','V Hz^(-1/2)'))

%Check coherence
iplot(cohere(Res1,Exc1,plist('Nfft','60*fs')),plist('LEGENDS',{'Coherence between injection and response'}));

M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist

```

```

M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: resampling by 1/1
M: resampling by 1/1
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: computing tfe(resample(C1:SUS-MC2_SUSPOS_OUT_DQ) -> C1:IOO-MC_F_DQ)
M: constructing from data object fsdata
----- ao 01: (TPE(resample(C1:SUS-MC2_SUSPOS_OUT_DQ)->C1:IOO-MC_F_DQ) .* ASD(resample(C1:SUS-MC2_SUSPOS_OUT_DQ))) -----
name: (TPE(resample(C1:SUS-MC2_SUSPOS_OUT_DQ)->C1:IOO-MC_F_DQ) .* ASD(resample(C1:SUS-MC2_SUSPOS_OUT_DQ)))
data: (0,0.000126628328163557) (0.0166666666666667,0.000172365880402694+i*3.13805550248455e-05) (0.0333333333333333,0.000158440948212999+i*2.
----- fsdata 01 -----
fs: 256
x: [7681 1], double
y: [7681 1], double
dx: [0 0], double
dy: [7681 1], double
xunits: [Hz]
yunits: [V Hz^(-1/2)]
t0: 2011-11-18 22:26:00.000 UTC
navs: 13
-----

```

```

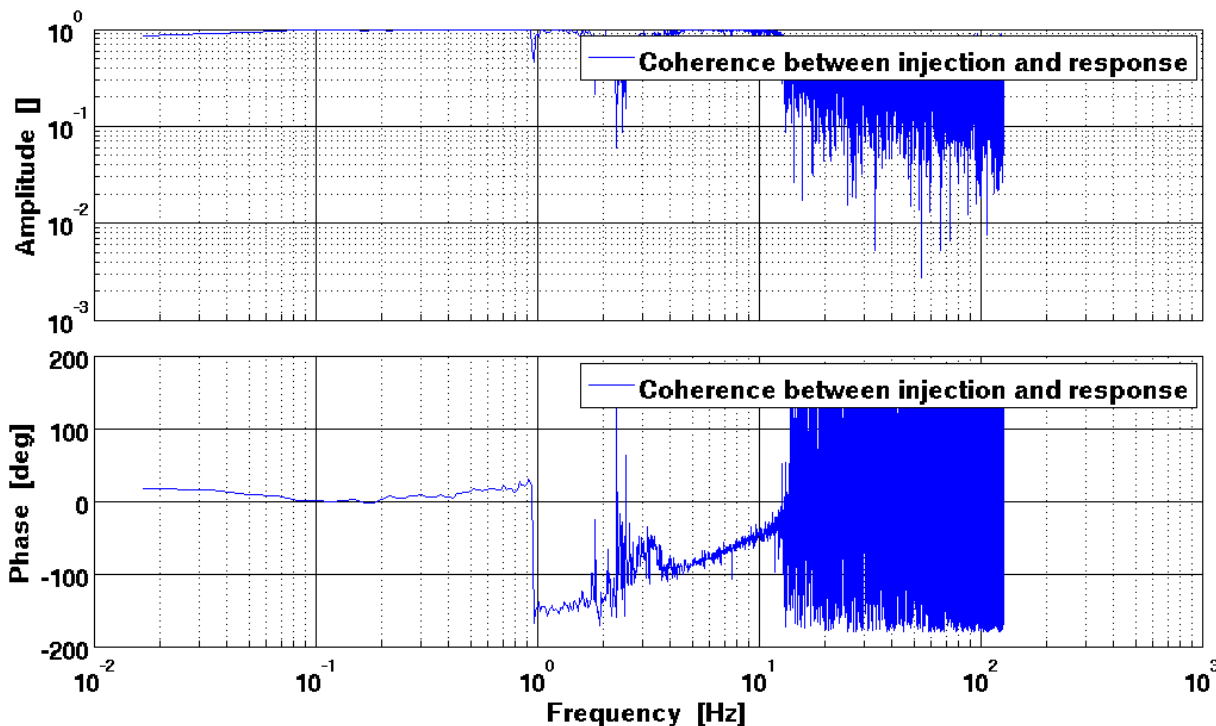
hist: ao / setYunits / $Id: setYunits.m,v 1.27 2011/05/09 22:08:15 mauro Exp $
description:
UUID: a485c42b-9295-44cc-8ca4-3f568ee21773
-----

```

```

M: setting Nfft to 60*fs = 15360
M: reset window to Hanning(15360)
M: using default overlap of 50.0%
M: computing cohere(C1:IOO-MC_F_DQ -> resample(C1:SUS-MC2_SUSPOS_OUT_DQ))
M: constructing from data object fsdata

```



MC3 long

```

nsecs_inj = 240;
ch1='C1:SUS-MC3_SUSPOS_OUT_DQ'; %Injection channel

tinj='2011-11-18 22:50:00';

plbsExc1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsRes1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsExc2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_ref, 'STARTTIMES', tref);

%Timeseries AO
Res1 = ao(plbsRes1);

```

```

Exc1 = ao(plbsExc1);
Exc2 = ao(plbsExc2);

%Resample to 256Hz (same as MC_F)
Exc1=resample(Exc1,plist('fsout',256));
Exc2=resample(Exc2,plist('fsout',256));

Reslfft=psd(Res1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc1fft=psd(Exc1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc2fft=psd(Exc2,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));

%Calculate TF during injection
CouplingMC3L =tfe(Exc1,Res1,plist('win','Kaiser','Nfft','60*fs'));
ProjectionMC3L = CouplingMC3L .* Exc2fft;
ProjectionMC3L = ProjectionMC3L.setYunits(plist('yunits','V Hz^(-1/2)'))

%Check coherence
iplot(cohere(Res1,Exc1,plist('Nfft','60*fs')),plist('LEGENDS',{'Coherence between injection and response'}));

M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    resampling by 1/1
M:    resampling by 1/1
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    computing tfe(resample(C1:SUS-MC3_SUSPOS_OUT_DQ) -> C1:IOO-MC_F_DQ)
M:    constructing from data object fsdata
----- ao 01: (TFE(resample(C1:SUS-MC3_SUSPOS_OUT_DQ)->C1:IOO-MC_F_DQ) .* ASD(resample(C1:SUS-MC3_SUSPOS_OUT_DQ))) -----

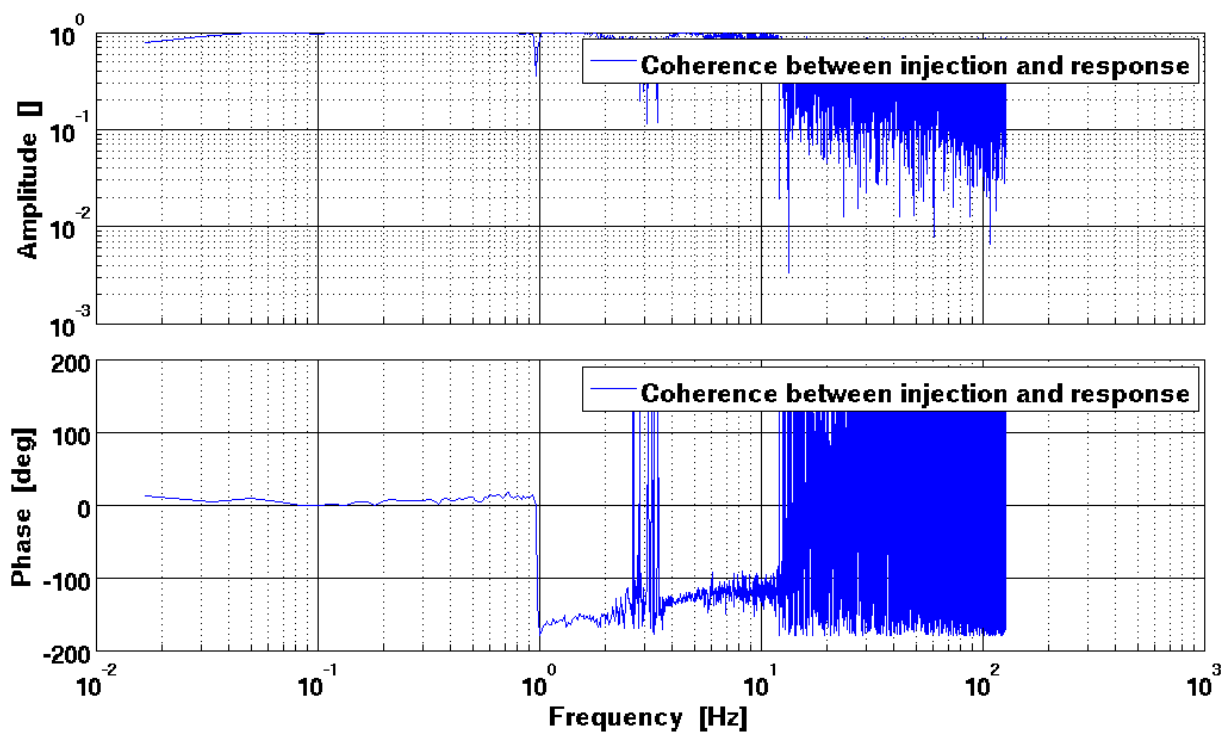
name: (TFE(resample(C1:SUS-MC3_SUSPOS_OUT_DQ)->C1:IOO-MC_F_DQ) .* ASD(resample(C1:SUS-MC3_SUSPOS_OUT_DQ)))
data: (0,5.14736435830368e-05) (0.0166666666666667,7.86214860942238e-05+1*1.50563938166336e-05) (0.0333333333333333,7.69092686776593e-05+1*1.
----- fsdata 01 -----

fs: 256
x: [7681 1], double
y: [7681 1], double
dx: [0 0], double
dy: [7681 1], double
xunits: [Hz]
yunits: [V Hz^(-1/2)]
t0: 2011-11-18 22:50:00.000 UTC
navs: 13
-----

hist: ao / setYunits / $Id: setYunits.m,v 1.27 2011/05/09 22:08:15 mauro Exp $
description:
  UUID: 8b22737f-543e-4731-9d14-9a980387dbb3
-----

M:    setting Nfft to 60*fs = 15360
M:    reset window to Hanning(15360)
M:    using default overlap of 50.0%
M:    computing cohere(C1:IOO-MC_F_DQ -> resample(C1:SUS-MC3_SUSPOS_OUT_DQ))
M:    constructing from data object fsdata

```



WFS1 pitch

```

nsecs_inj = 240;
ch1='C1:IOO-WFS1_PIT_OUT_DQ'; %Injection channel

tinj='2011-11-17 22:57:00';

plbsExc1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsRes1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsExc2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_ref, 'STARTTIMES', tref);

%Timeseries AO
Res1 = ao(plbsRes1);
Exc1 = ao(plbsExc1);
Exc2 = ao(plbsExc2);

%Resample to 256Hz (same as MC_F)
Exc1=resample(Exc1,plist('fsout',256));
Exc2=resample(Exc2,plist('fsout',256));

Res1fft=psd(Res1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc1fft=psd(Exc1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc2fft=psd(Exc2,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));

%Calculate TF during injection
CouplingWFS1PIT =tfe(Exc1,Res1,plist('win','Kaiser','Nfft','60*fs'));
ProjectionWFS1PIT = CouplingWFS1PIT .* Exc2fft;
ProjectionWFS1PIT = ProjectionWFS1PIT.setYunits(plist('yunits','V Hz^(-1/2)'))

%Check coherence
iplot(cohere(Res1,Exc1,plist('Nfft','60*fs')),plist('LEGENDS',{'Coherence between injection and response'}));

M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: resampling by 1/8
M: resampling by 1/8
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%

```

```

M:      computing tfe(resample(C1:I00-WFS1_PIT_OUT_DQ) -> C1:I00-MC_F_DQ)
M:      constructing from data object fsdata
----- ao 01: (TFE(resample(C1:I00-WFS1_PIT_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS1_PIT_OUT_DQ))) -----

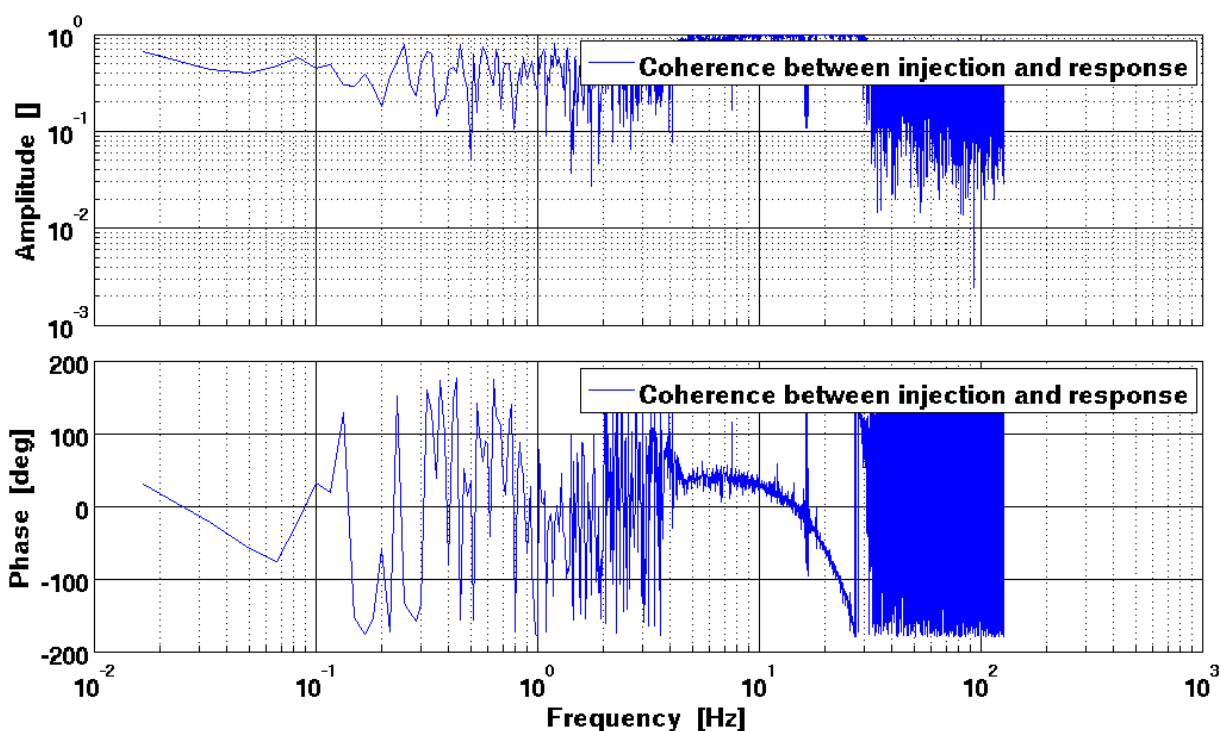
name: (TFE(resample(C1:I00-WFS1_PIT_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS1_PIT_OUT_DQ)))
data: (0,7.25604361170934e-05) (0.0166666666666667,0.000106429334944774-i*7.65291128270454e-07) (0.0333333333333333,7.81761914014055e-05-i*8.
----- fsdata 01 -----

fs: 256
x: [7681 1], double
y: [7681 1], double
dx: [0 0], double
dy: [7681 1], double
xunits: [Hz]
yunits: [V Hz^(-1/2)]
t0: 2011-11-17 22:57:00.000 UTC
navs: 13
-----

hist: ao / setYunits / $Id: setYunits.m,v 1.27 2011/05/09 22:08:15 mauro Exp $
description:
  UUID: 65f3a166-2473-45f6-b5ec-5239f35elf45
-----

M:      setting Nfft to 60*fs = 15360
M:      reset window to Hanning(15360)
M:      using default overlap of 50.0%
M:      computing cohere(C1:I00-MC_F_DQ -> resample(C1:I00-WFS1_PIT_OUT_DQ))
M:      constructing from data object fsdata

```



WFS2 pitch

```

nsecs_inj = 240;
ch1='C1:I00-WFS2_PIT_OUT_DQ'; %Injection channel

tinj='2011-11-17 23:13:00';

plbsExc1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsRes1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsExc2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_ref, 'STARTTIMES', tref);

%Timeseries AO
Res1 = ao(plbsRes1);
Exc1 = ao(plbsExc1);
Exc2 = ao(plbsExc2);

%Resample to 256Hz (same as MC_F)
Exc1=resample(Exc1,plist('fsout',256));
Exc2=resample(Exc2,plist('fsout',256));

Res1fft=pad(Res1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc1fft=pad(Exc1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc2fft=pad(Exc2,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));

%Calculate TF during injection
CouplingWFS2PIT =tfe(Exc1,Res1,plist('win','Kaiser','Nfft','60*fs'));
ProjectionWFS2PIT = CouplingWFS2PIT .* Exc2fft;
ProjectionWFS2PIT = ProjectionWFS2PIT.setYunits(plist('yunits','V Hz^(-1/2)'))

%Check coherence
iplot(cohere(Res1,Exc1,plist('Nfft','60*fs')),plist('LEGENDS',{'Coherence between injection and response'}));

```

```

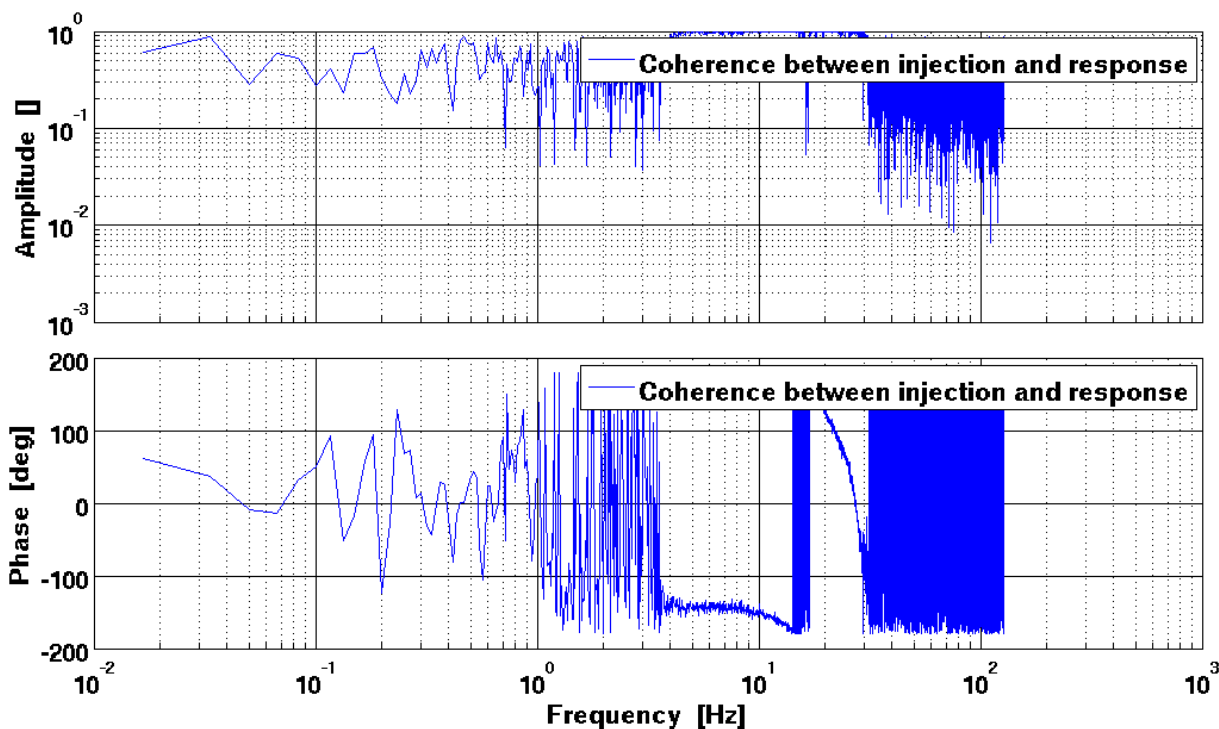
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: constructing from plist
M: looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M: looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M: getting data from fb
M: constructing from data object tsdata
M: resampling by 1/8
M: resampling by 1/8
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: setting Nfft to 60*fs = 15360
M: reset window to Kaiser(15360)
M: using default overlap of 76.6%
M: computing tfe(resample(C1:I00-WFS2_PIT_OUT_DQ) -> C1:I00-MC_F_DQ)
M: constructing from data object fsdata
----- ao 01: (TFE(resample(C1:I00-WFS2_PIT_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS2_PIT_OUT_DQ))) -----
name: (TFE(resample(C1:I00-WFS2_PIT_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS2_PIT_OUT_DQ)))
data: (0,2.57280600385776e-05) (0.0166666666666667,5.17745075042249e-05+i*6.13736983222772e-05) (0.0333333333333333,6.11171724344273e-05+i*7.
----- fsdata 01 -----
fs: 256
x: [7681 1], double
y: [7681 1], double
dx: [0 0], double
dy: [7681 1], double
xunits: [Hz]
yunits: [V Hz^(-1/2)]
t0: 2011-11-17 23:13:00.000 UTC
navs: 13
-----
hist: ao / setYunits / $Id: setYunits.m,v 1.27 2011/05/09 22:08:15 mauro Exp $
description:
  UUID: f9314d98-05af-49f2-a670-de8cad9747c5
-----

```

```

M: setting Nfft to 60*fs = 15360
M: reset window to Hanning(15360)
M: using default overlap of 50.0%
M: computing cohere(C1:I00-MC_F_DQ -> resample(C1:I00-WFS2_PIT_OUT_DQ))
M: constructing from data object fsdata

```



WFS1 YAW

nsecs_inj = 240;


```

chl='C1:I00-WFS1_YAW_OUT_DQ'; %Injection channel

tinj='2011-11-17 23:03:00';

plbsExc1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', chl, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsRes1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsExc2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', chl, 'NSECS', nsecs_ref, 'STARTTIMES', tref);

%Timeseries AO
Res1 = ao(plbsRes1);
Exc1 = ao(plbsExc1);
Exc2 = ao(plbsExc2);

%Resample to 256Hz (same as MC_F)
Exc1=resample(Exc1,plist('fsout',256));
Exc2=resample(Exc2,plist('fsout',256));

Res1fft=pad(Res1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc1fft=pad(Exc1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc2fft=pad(Exc2,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));

%Calculate TF during injection
CouplingWFS1YAW =tfe(Exc1,Res1,plist('win','Kaiser','Nfft','60*fs'));
ProjectionWFS1YAW = CouplingWFS1YAW .* Exc2fft;
ProjectionWFS1YAW = ProjectionWFS1YAW.setYunits(plist('yunits','V Hz^(-1/2)'))

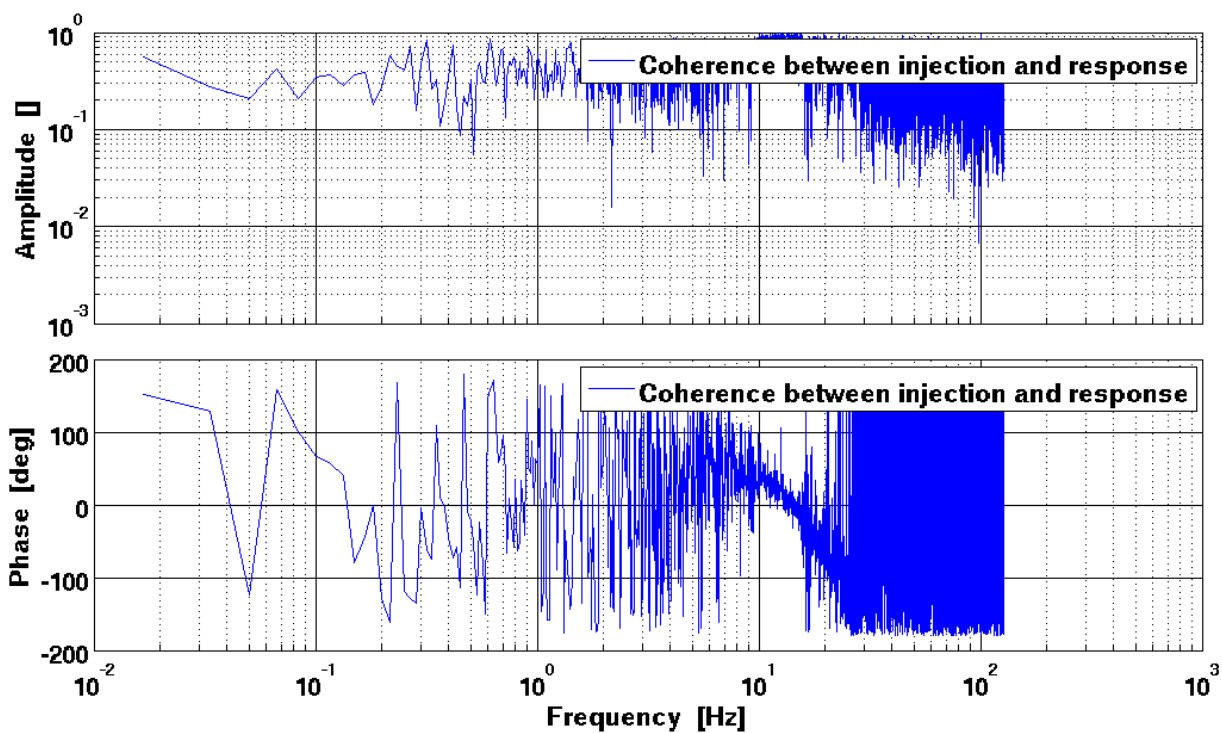
%Check coherence
iplot(cohere(Res1,Exc1,plist('Nfft','60*fs')),plist('LEGENDS',{'Coherence between injection and response'}));

M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpta_toolbox_2.4/ltpta/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpta_toolbox_2.4/ltpta/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpta_toolbox_2.4/ltpta/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    resampling by 1/8
M:    resampling by 1/8
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    computing tfe(resample(C1:I00-WFS1_YAW_OUT_DQ) -> C1:I00-MC_F_DQ)
M:    constructing from data object fsdata
----- ao 01: (TFE(resample(C1:I00-WFS1_YAW_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS1_YAW_OUT_DQ))) -----
name: (TFE(resample(C1:I00-WFS1_YAW_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS1_YAW_OUT_DQ)))
data: (0,-1.17574994190644e-05) (0.0166666666666667,-2.58662437468287e-05+i*1.28300434116811e-05) (0.0333333333333333,-3.13338437445096e-05+i
----- fsdata 01 -----
fs: 256
x: [7681 1], double
y: [7681 1], double
dx: [0 0], double
dy: [7681 1], double
xunits: [Hz]
yunits: [V Hz^(-1/2)]
t0: 2011-11-17 23:03:00.000 UTC
navs: 13
-----

hist: ao / setYunits / $Id: setYunits.m,v 1.27 2011/05/09 22:08:15 mauro Exp $
description:
  UUID: b544c04f-33d0-4dd4-ale6-7589d9569370
-----

M:    setting Nfft to 60*fs = 15360
M:    reset window to Hanning(15360)
M:    using default overlap of 50.0%
M:    computing cohere(C1:I00-MC_F_DQ -> resample(C1:I00-WFS1_YAW_OUT_DQ))
M:    constructing from data object fsdata

```



WFS2 YAW

```

nsecs_inj = 240;
ch1='C1:IOO-WFS2_YAW_OUT_DQ'; %Injection channel

tinj='2011-11-17 23:18:00';

plbsExc1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsRes1 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch2, 'NSECS', nsecs_inj, 'STARTTIMES', tinj);
plbsExc2 = plist('built-in', 'ndsclient', 'hostname', rserverDAQ, 'PORT', 8088, 'CHANNELS', ch1, 'NSECS', nsecs_ref, 'STARTTIMES', tref);

%Timeseries AO
Res1 = ao(plbsRes1);
Exc1 = ao(plbsExc1);
Exc2 = ao(plbsExc2);

%Resample to 256Hz (same as MC_F)
Exc1=resample(Exc1,plist('fsout',256));
Exc2=resample(Exc2,plist('fsout',256));

Res1fft=psd(Res1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc1fft=psd(Exc1,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));
Exc2fft=psd(Exc2,plist('scale','ASD','win','Kaiser','Nfft','60*fs'));

%Calculate TF during injection
CouplingWFS2YAW =tfe(Exc1,Res1,plist('win','Kaiser','Nfft','60*fs'));
ProjectionWFS2YAW = CouplingWFS2YAW .* Exc2fft;
ProjectionWFS2YAW = ProjectionWFS2YAW.setYunits(plist('yunits','V Hz^(-1/2)'))

%Check coherence
iplot(cohere(Res1,Exc1,plist('Nfft','60*fs')),plist('LEGENDS',{'Coherence between injection and response'}));

M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    constructing from plist
M:    looking for models in /cvs/cds/caltech/apps/linux64/NDS_Client/models
M:    looking for models in /cvs/cds/caltech/users/mirko/ltpda_toolbox_2.4/ltpda/classes/+utils/@models/../../../../m/built_in_models
M:    getting data from fb
M:    constructing from data object tsdata
M:    resampling by 1/8
M:    resampling by 1/8
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%
M:    setting Nfft to 60*fs = 15360
M:    reset window to Kaiser(15360)
M:    using default overlap of 76.6%

```

```

M:      computing tfe(resample(C1:I00-WFS2_YAW_OUT_DQ) -> C1:I00-MC_F_DQ)
M:      constructing from data object fsdata
----- ao 01: (TFE(resample(C1:I00-WFS2_YAW_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS2_YAW_OUT_DQ))) -----

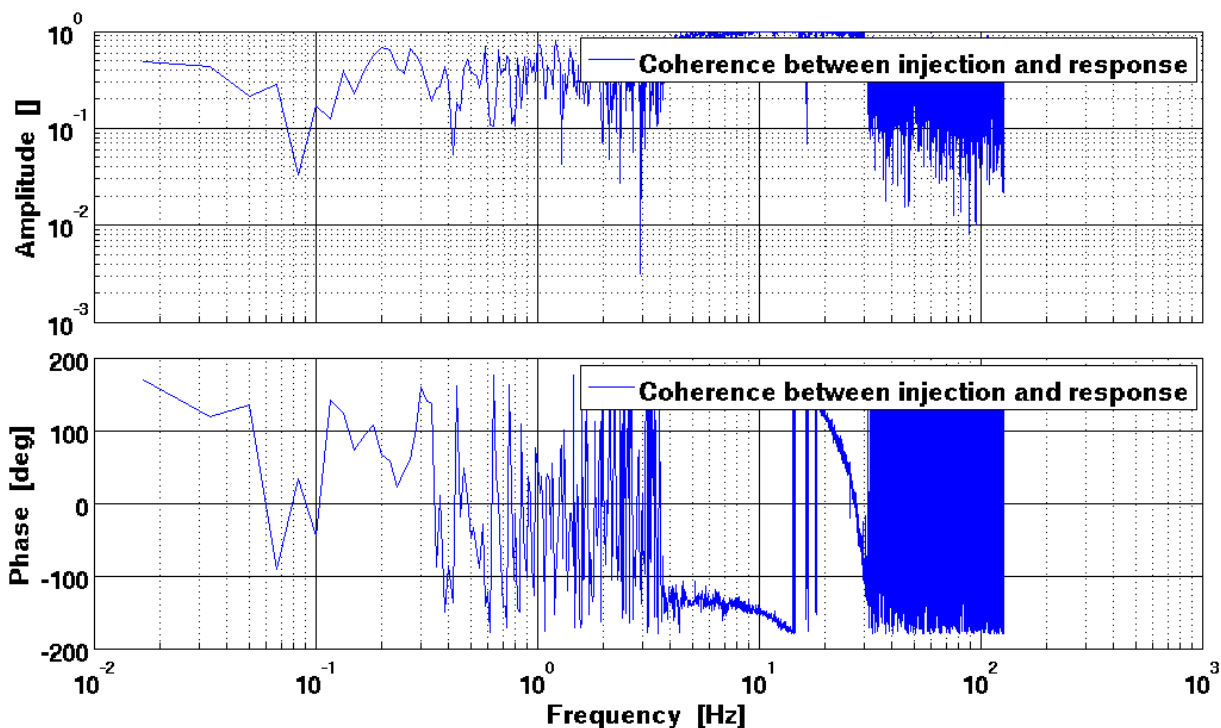
name: (TFE(resample(C1:I00-WFS2_YAW_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS2_YAW_OUT_DQ)))
data: (0,-0.000145180272508126) (0.0166666666666667,-0.000203422630209911+1*3.68084372358676e-05) (0.0333333333333333,-0.000121783493231965+i
----- fsdata 01 -----

fs: 256
x: [7681 1], double
y: [7681 1], double
dx: [0 0], double
dy: [7681 1], double
xunits: [Hz]
yunits: [V Hz^(-1/2)]
t0: 2011-11-17 23:18:00.000 UTC
navs: 13
-----

hist: ao / setYunits / $Id: setYunits.m,v 1.27 2011/05/09 22:08:15 mauro Exp $
description:
  UUID: c78f8e5b-3a21-49db-964c-d5143305dee3
-----

M:      setting Nfft to 60*fs = 15360
M:      reset window to Hanning(15360)
M:      using default overlap of 50.0%
M:      computing cohere(C1:I00-MC_F_DQ -> resample(C1:I00-WFS2_YAW_OUT_DQ))
M:      constructing from data object fsdata

```



Plot stuff

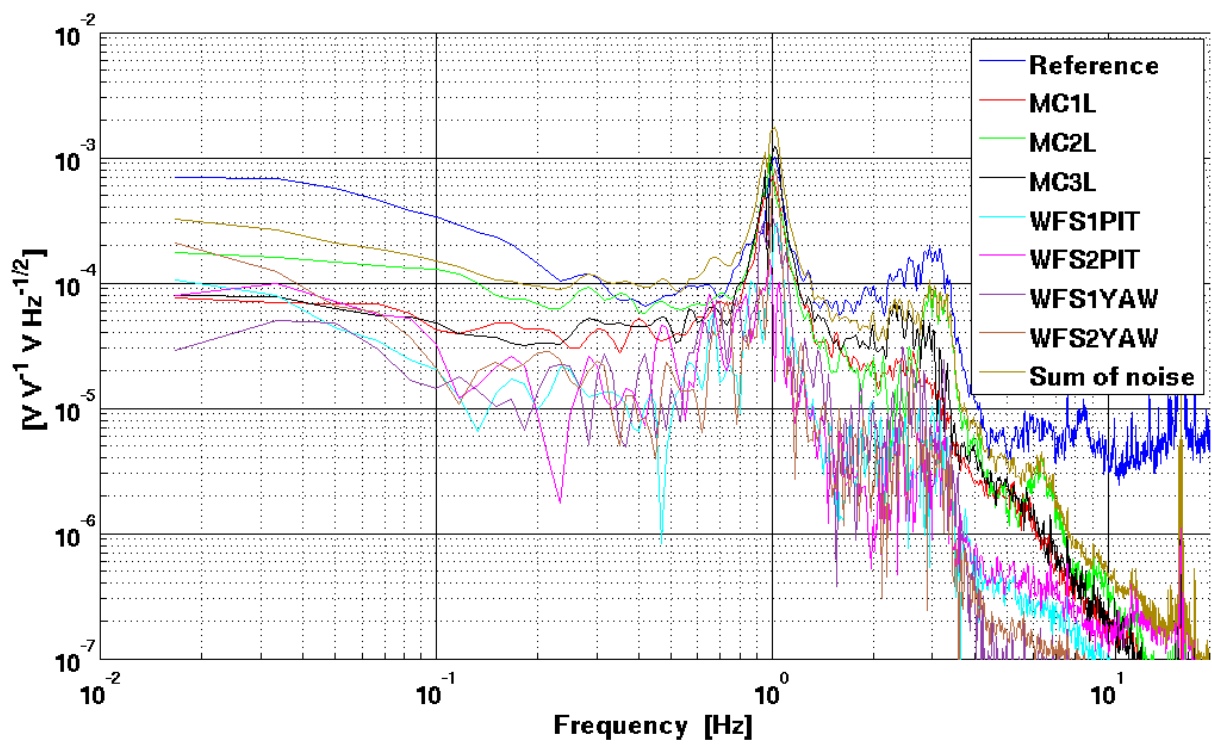
```

%iplot(Res2fft)
sumuncorr=abs(ProjectionMC1L).^2+abs(ProjectionMC2L).^2+abs(ProjectionMC3L).^2+abs(ProjectionWFS1PIT).^2+abs(ProjectionWFS2PIT).^2+abs(ProjectionWFS
sumuncorr=sqrt(sumuncorr);

iplot(Res2fft,abs(ProjectionMC1L),abs(ProjectionMC2L),abs(ProjectionMC3L),abs(ProjectionWFS1PIT),abs(ProjectionWFS2PIT),abs(ProjectionWFS1YAW),abs(F

M:      applying power to abs((TFE(resample(C1:SUS-MC1_SUSPOS_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:SUS-MC1_SUSPOS_OUT_DQ)))) and 2
M:      applying power to abs((TFE(resample(C1:SUS-MC2_SUSPOS_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:SUS-MC2_SUSPOS_OUT_DQ)))) and 2
M:      applying power to abs((TFE(resample(C1:SUS-MC3_SUSPOS_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:SUS-MC3_SUSPOS_OUT_DQ)))) and 2
M:      applying power to abs((TFE(resample(C1:I00-WFS1_PIT_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS1_PIT_OUT_DQ)))) and 2
M:      applying power to abs((TFE(resample(C1:I00-WFS2_PIT_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS2_PIT_OUT_DQ)))) and 2
M:      applying power to abs((TFE(resample(C1:I00-WFS1_YAW_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS1_YAW_OUT_DQ)))) and 2
M:      applying power to abs((TFE(resample(C1:I00-WFS2_YAW_OUT_DQ)->C1:I00-MC_F_DQ) .* ASD(resample(C1:I00-WFS2_YAW_OUT_DQ)))) and 2

```



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