

SUS_TopMassOSEMs

May 26, 2023

```
[4]: from gwpy.timeseries import TimeSeries
      from gwpy.plot import Plot
```

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[35]: ReferenceTime = 1368962814
```

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#CheckTime = 1345560072 # At least SR2 was rubbing here.
CheckTime = 1369150760 # Middle of night, IFO should be DOWN

dt = 60
```

```
[36]: optics = {'ITMX': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'ITMY': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'ETMX': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'ETMY': {'stage': 'M0', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'BS': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'PRM': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'PR2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'PR3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'SRM': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'SR2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'SR3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'MC1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'MC2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'MC3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'TMSX': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'TMSY': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'IM1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'IM2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'IM3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'IM4': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'RM1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'RM2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'OM1': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'OM2': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'OM3': {'stage': 'M1', 'dofs': ['L', 'P', 'Y']},
               'OMC': {'stage': 'M1', 'dofs': ['L', 'P', 'Y', 'R', 'T', 'V']},
               'OFI': {'stage': 'M1', 'dofs': ['L', 'T', 'Y']},
               }
```

```

for optic in optics.keys():
    chanlist = []
    for dof in optics[optic]['dofs']:
        chanlist.append('H1:SUS-%s_%s_DAMP_%s_IN1_DQ'%(optic,
↳optics[optic]['stage'], dof))

    optics[optic]['chanlist'] = chanlist

```

```

[37]: myplot = {}

for optic in optics.keys():
    myplot[optic] = Plot(figsize=(50,8))
    ii = 0
    for dof in optics[optic]['dofs']:
        ii += 1
        myplot[optic].add_subplot(1, len(optics[optic]['dofs']), ii)

        print('Fetching data for %s'%optics[optic]['chanlist'][ii-1])
        refData = TimeSeries.fetch(optics[optic]['chanlist'][ii-1],
↳ReferenceTime, ReferenceTime+dt).asd(8,4)
        checkData = TimeSeries.fetch(optics[optic]['chanlist'][ii-1],
↳CheckTime, CheckTime+dt).asd(8,4)

        ax = myplot[optic].gca()
        ax.plot(refData, label='Reference time %s'%ReferenceTime)
        ax.plot(checkData, label='Check time %s'%CheckTime)
        ax.set_xscale('log')
        ax.set_yscale('log')
        ax.set_xlabel('Frequency [Hz]')
        ax.set_ylabel('Optic Motion [um/rtHz or urad/rtHz]')
        ax.set_title(optics[optic]['chanlist'][ii-1])
        ax.legend()

```

```

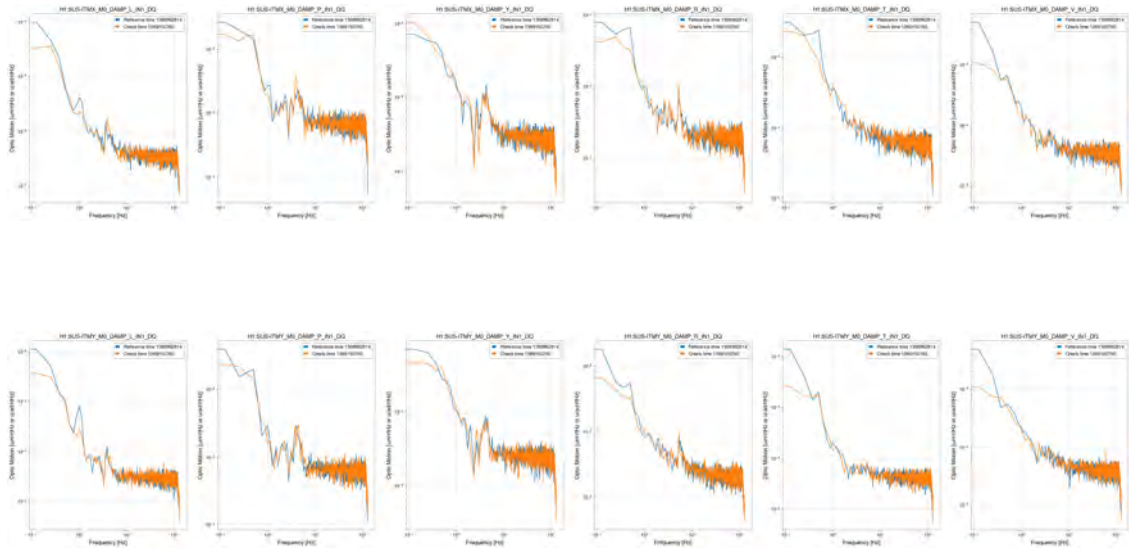
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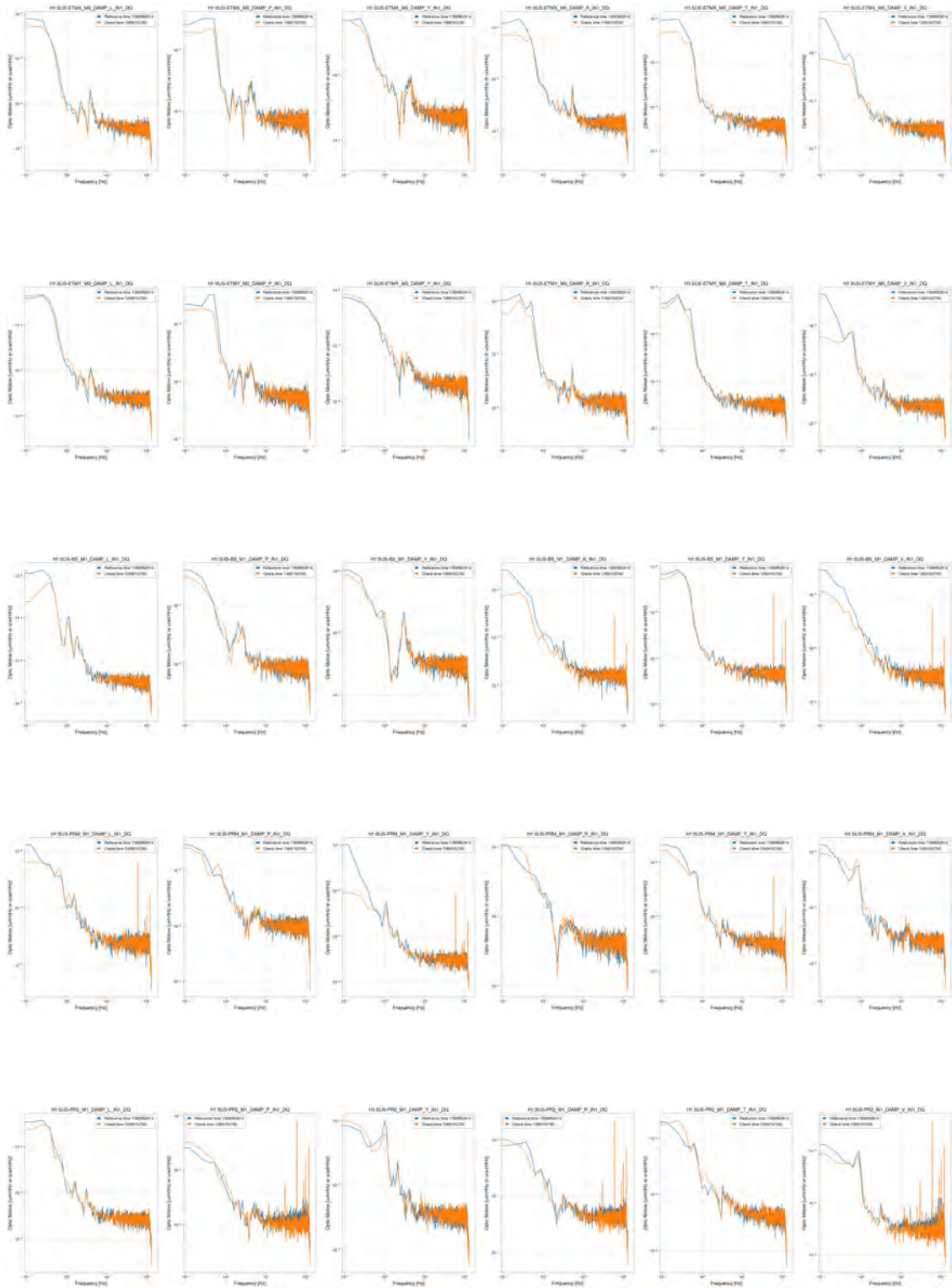
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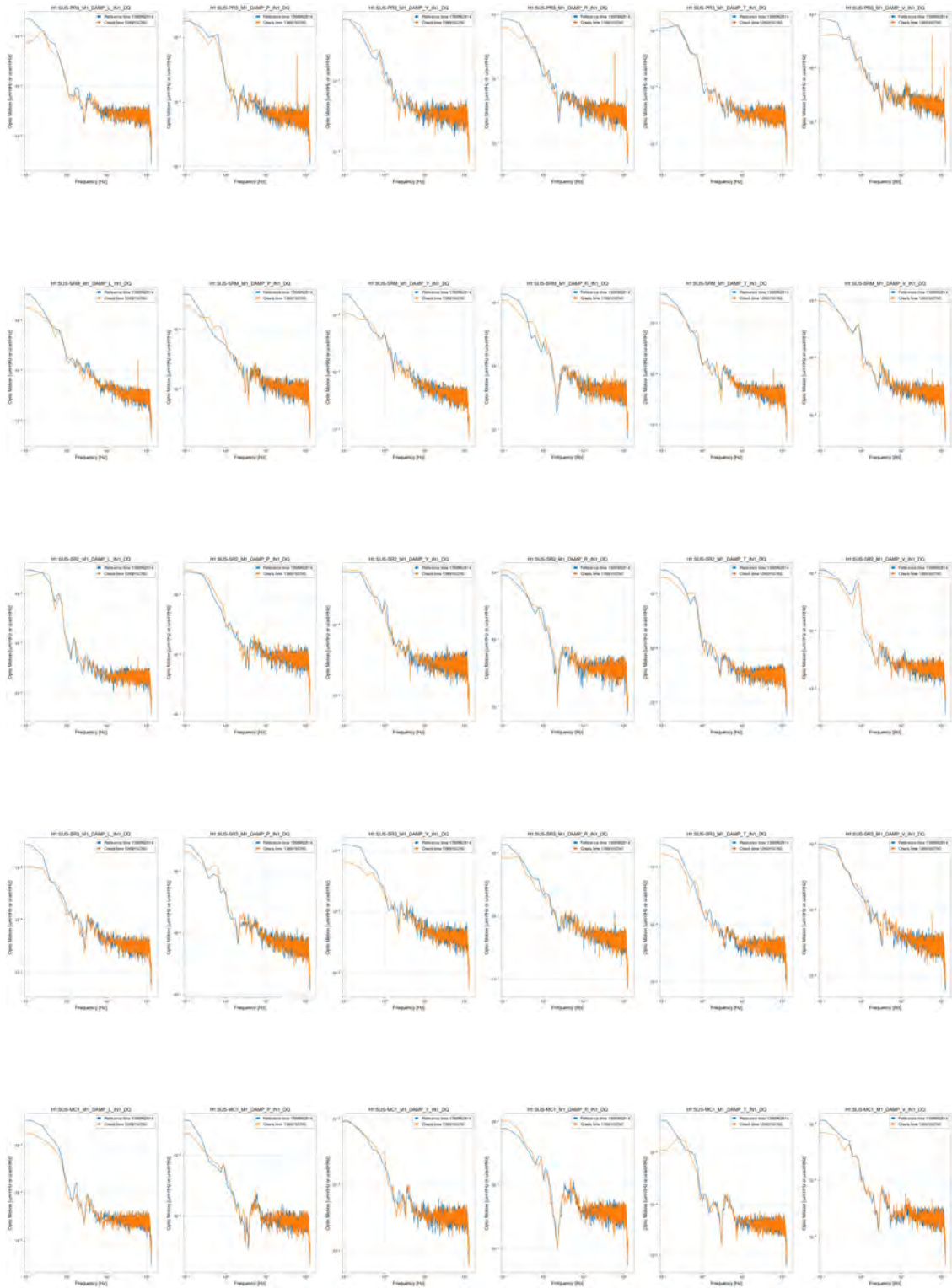
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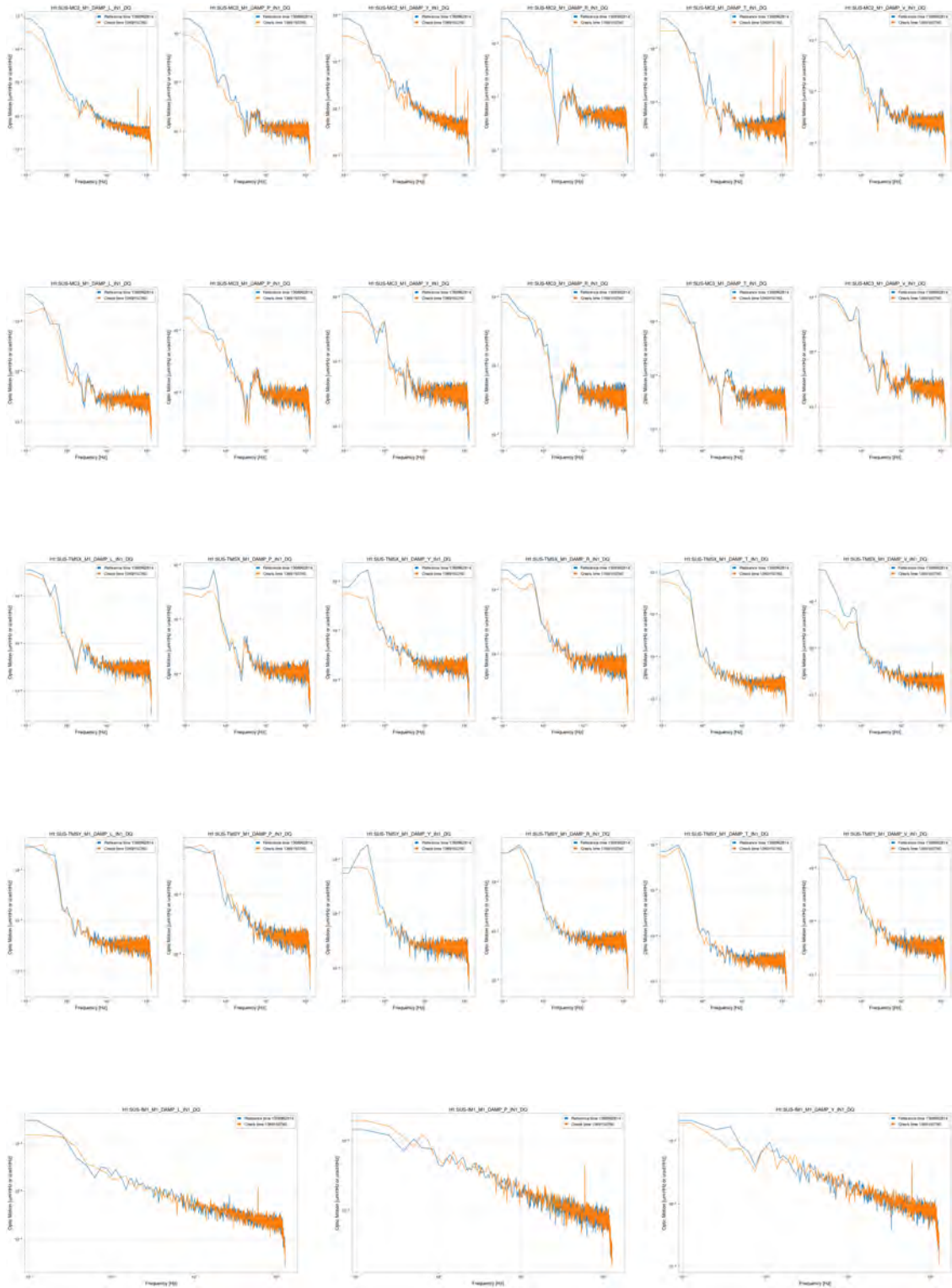
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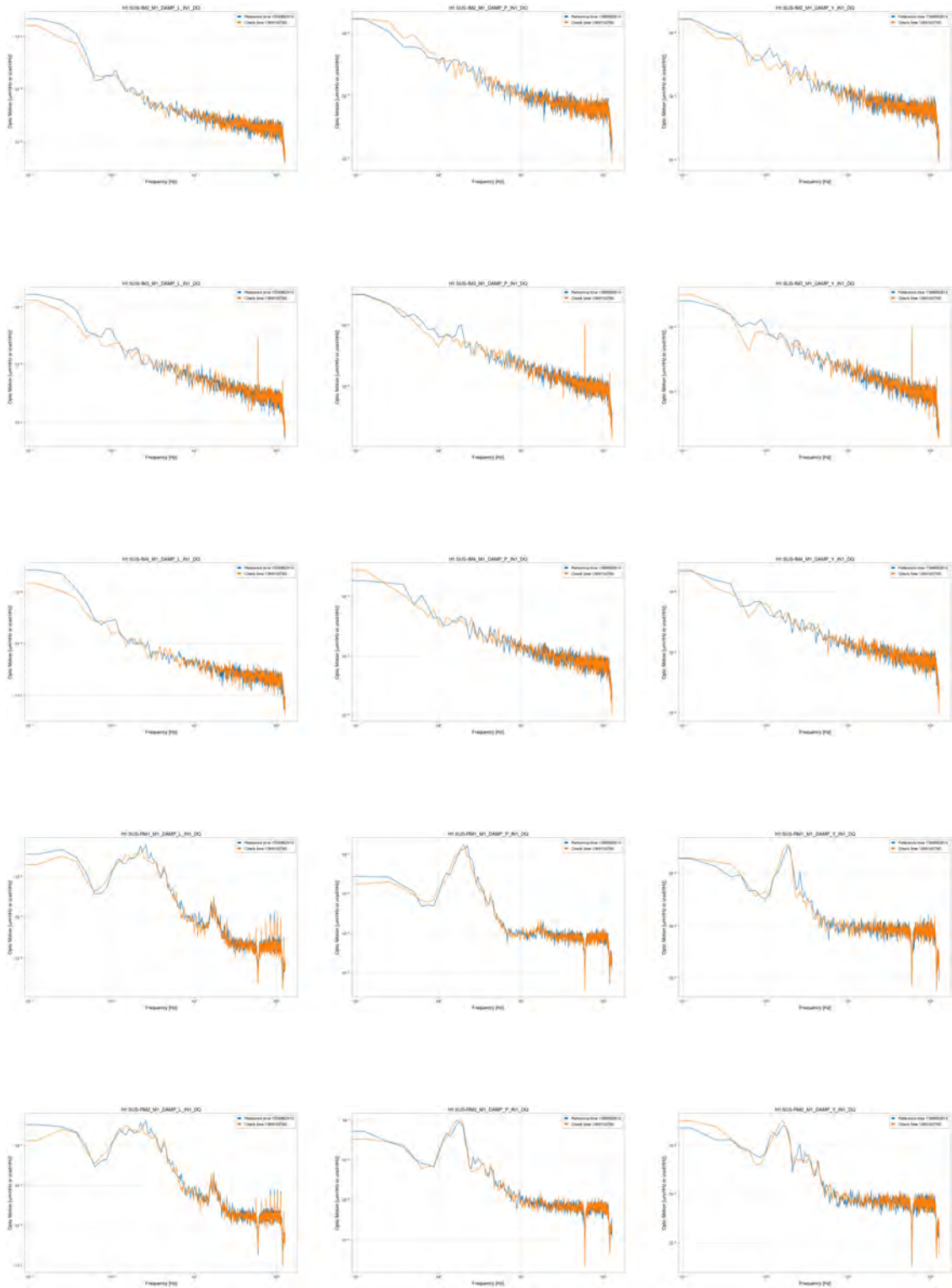
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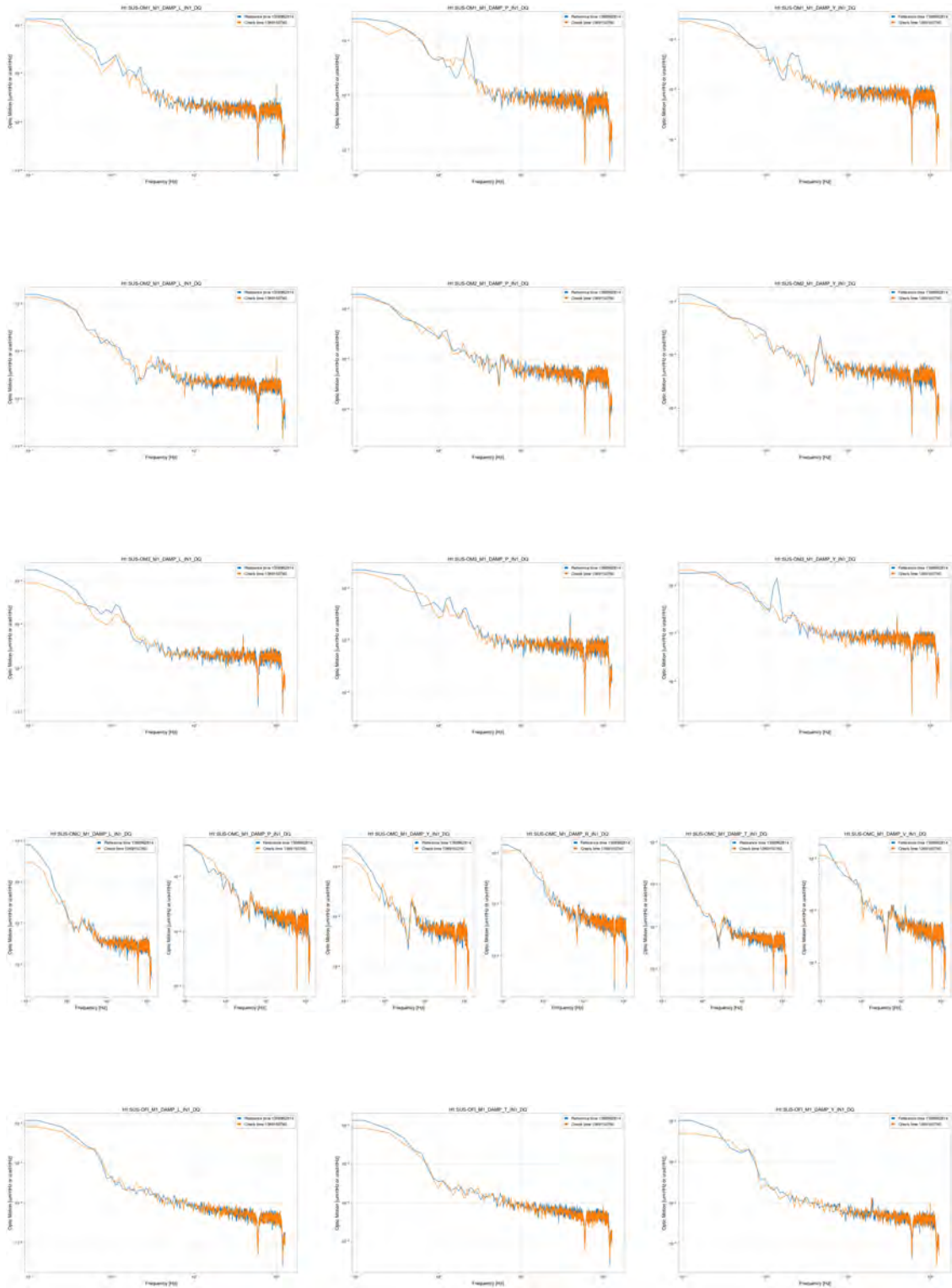






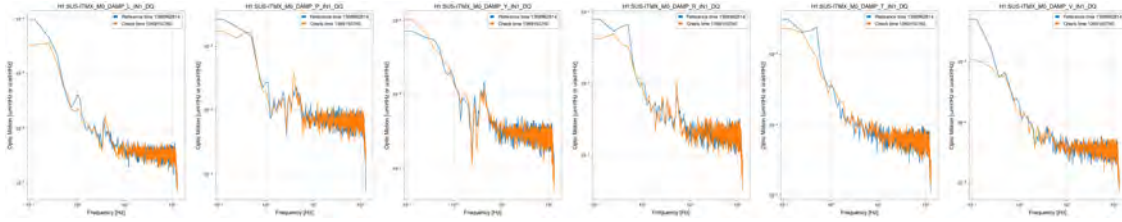






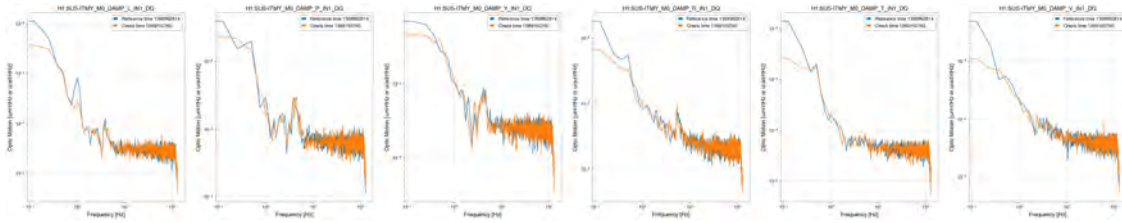
```
[38]: myplot['ITMX']
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[38]:
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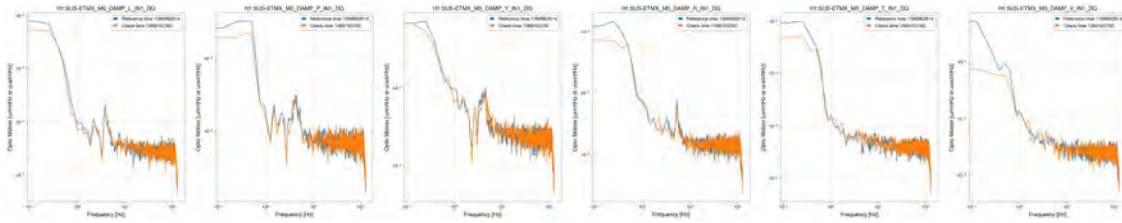
[39]: myplot['ITMY']

[39]:



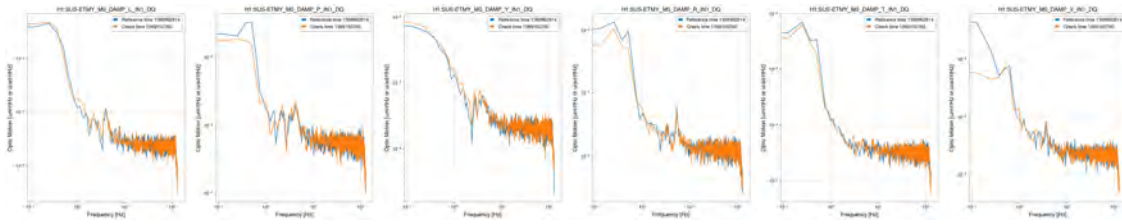
[40]: myplot['ETMX']

[40]:



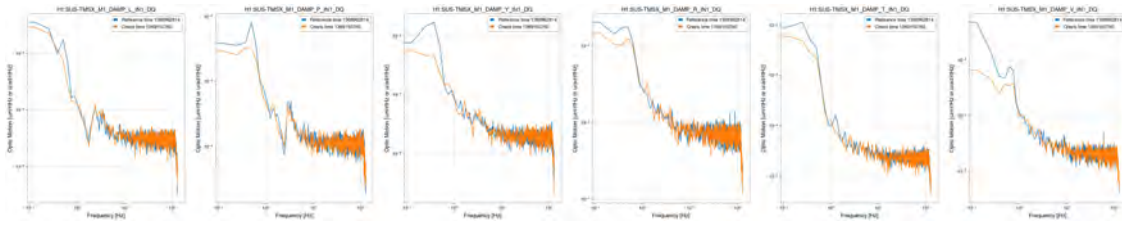
[41]: myplot['ETMY']

[41]:



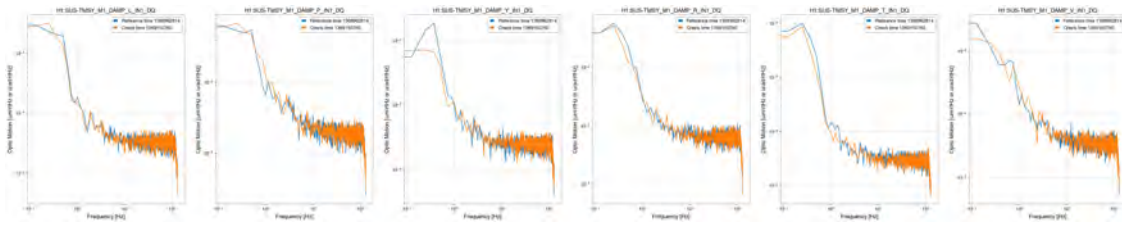
[42]: myplot['TMSX']

[42]:



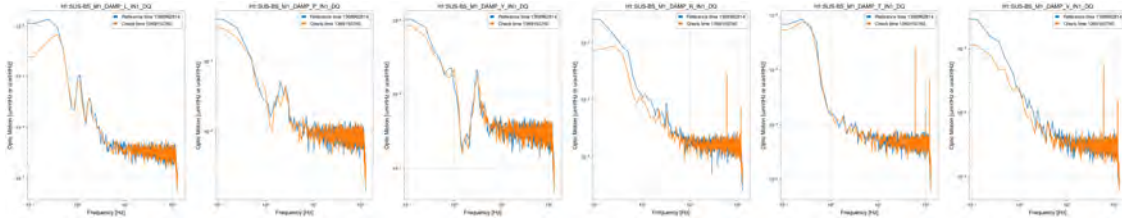
[43]: myplot['TMSY']

[43]:



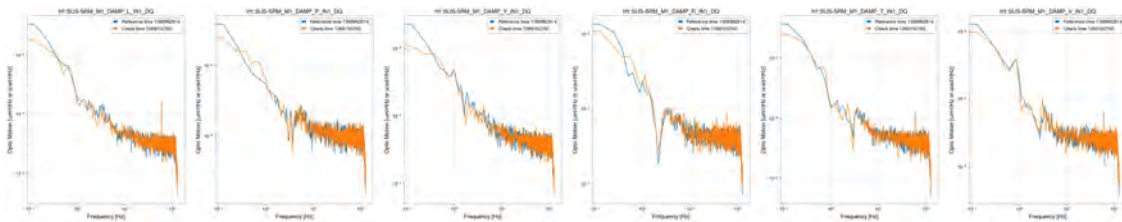
[44]: myplot['BS']

[44]:



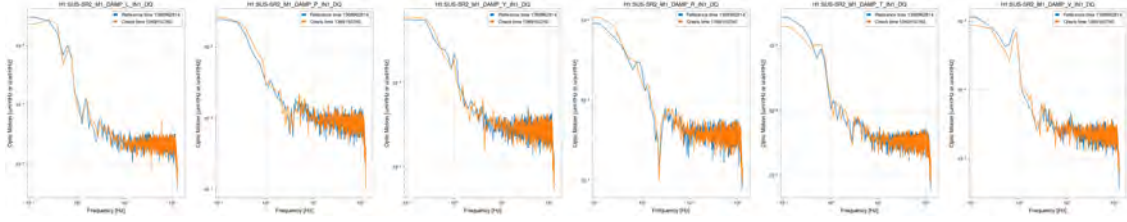
[45]: myplot['SRM']

[45]:



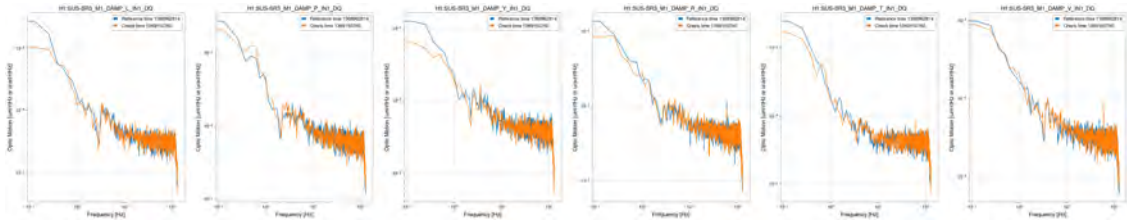
[46]: myplot['SR2']

[46]:



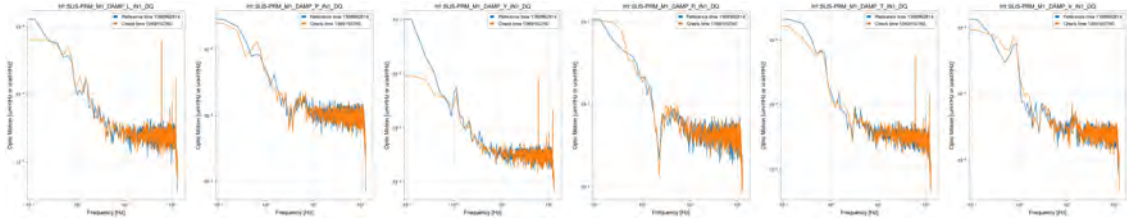
[47]: myplot['SR3']

[47]:



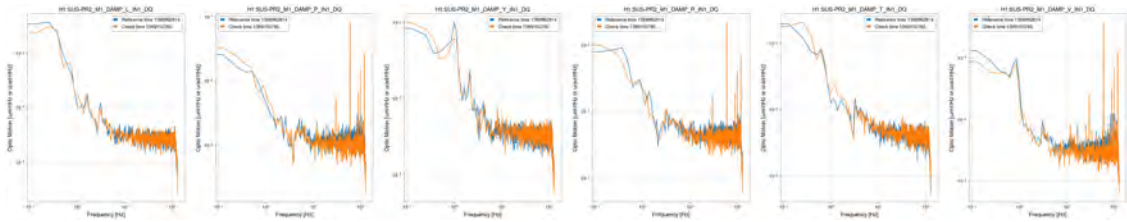
[48]: myplot['PRM']

[48]:



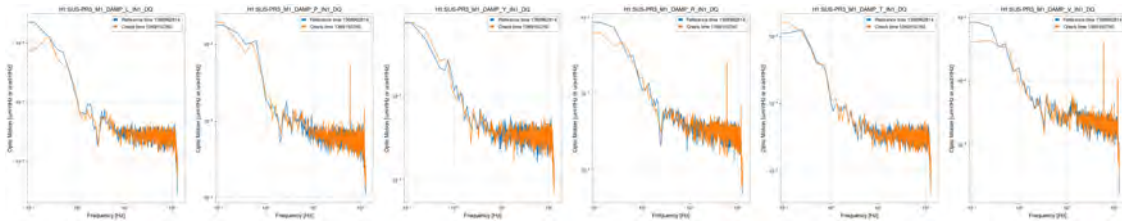
[49]: myplot['PR2']

[49]:



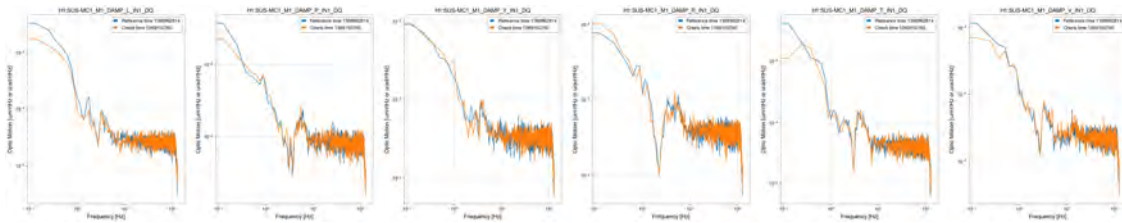
[50]: myplot['PR3']

[50]:



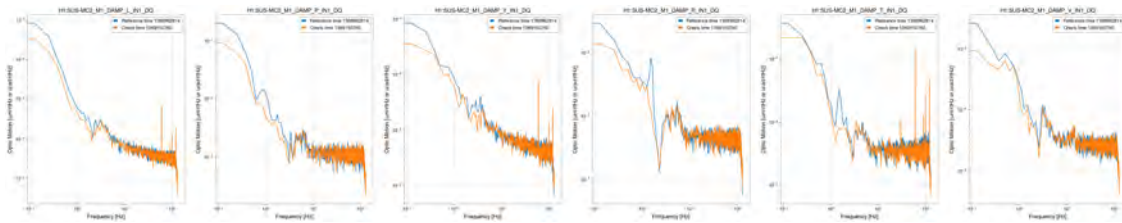
[51]: myplot['MC1']

[51]:



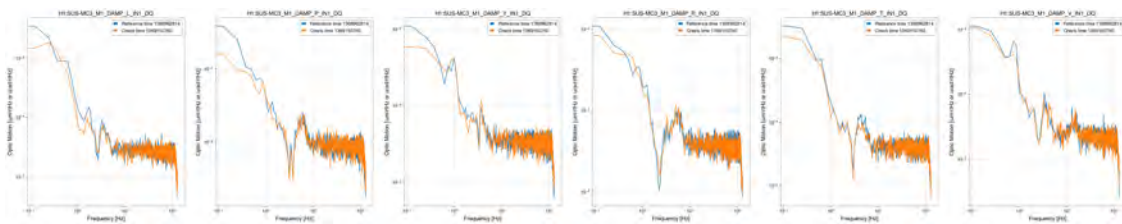
[52]: myplot['MC2']

[52]:



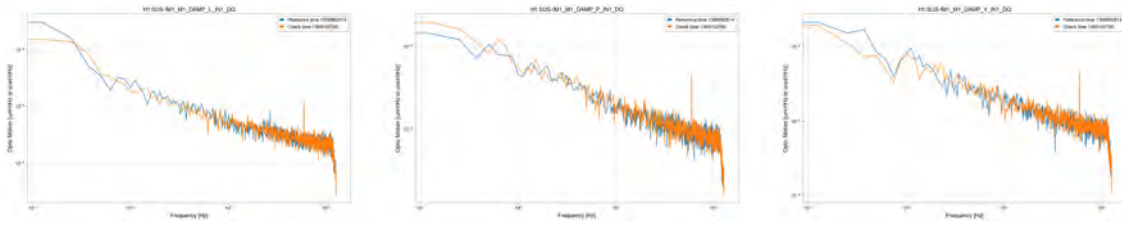
[53]: myplot['MC3']

[53]:



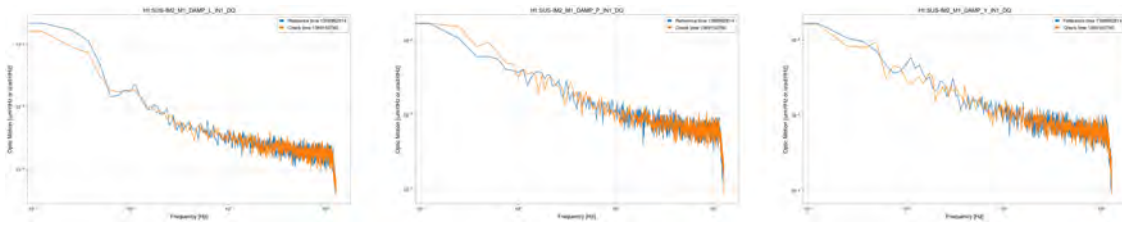
[54]: myplot['IM1']

[54]:



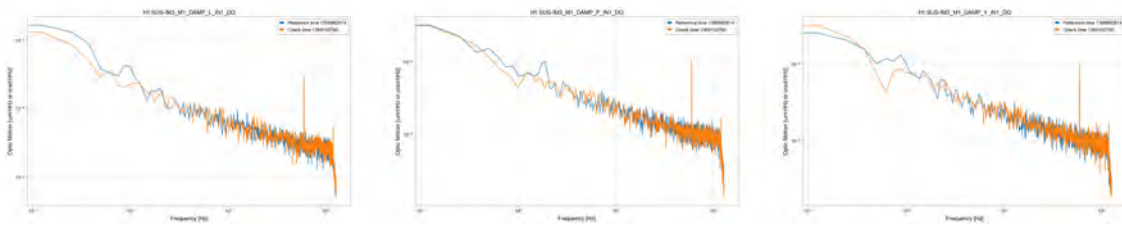
[55]: myplot['IM2']

[55]:



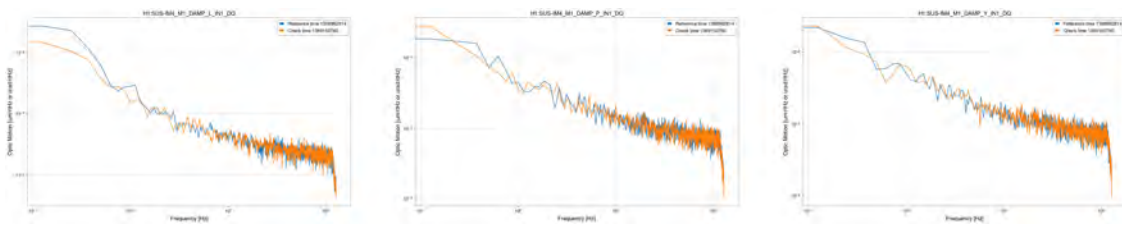
[56]: myplot['IM3']

[56]:



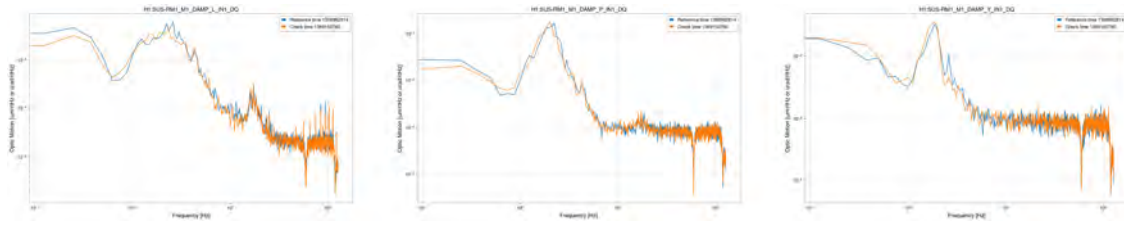
[57]: myplot['IM4']

[57]:



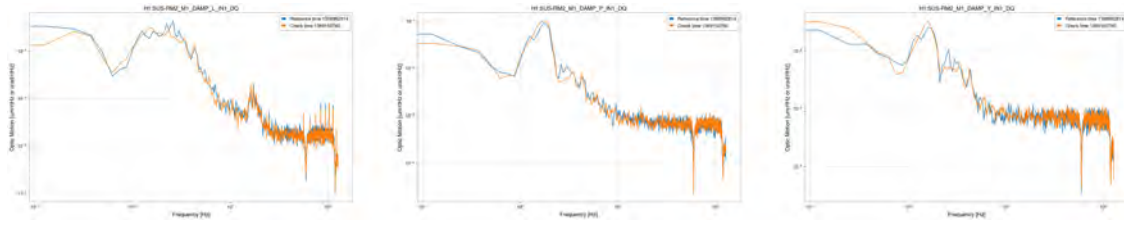
[58]: myplot['RM1']

[58]:



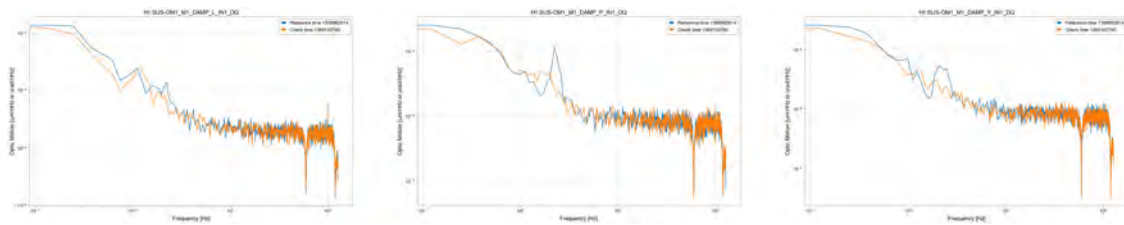
[59]: myplot['RM2']

[59]:



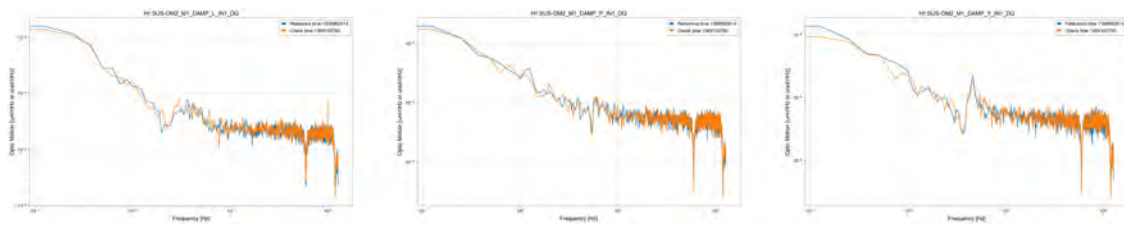
[60]: myplot['OM1']

[60]:



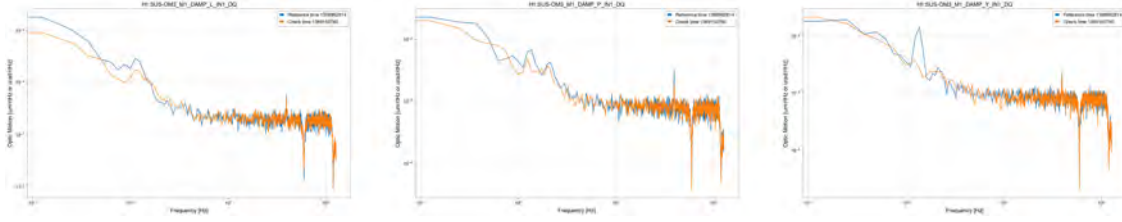
[61]: myplot['OM2']

[61]:



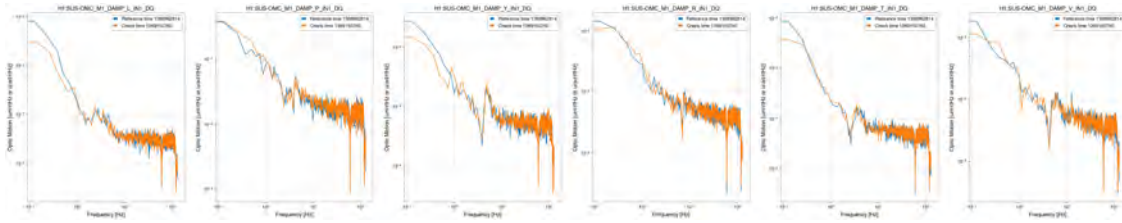
[62]: myplot['OM3']

[62]:



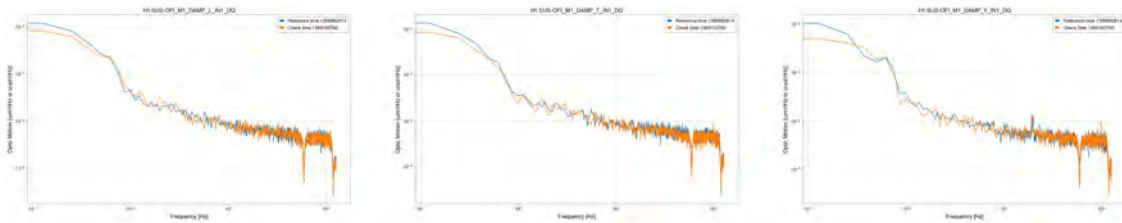
[63]: myplot['OMC']

[63]:



[64]: myplot['OFI']

[64]:



[]: