

2021/07/08

Migrating from Pykat + Finesse 2

Many of the features from Pykat have been integrated directly into FINESSE 3 and in some cases, expanded. This leads to some important difference in the usual recipes to produce an interferometer and start modelling, which are summarized below.

- [Trace verbosity](#)
- [Example of migration from Pykat + Finesse 2](#)

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Traceが変わった

Old <code>trace</code> option, n	New FINESSE equivalent
1	The <code>Model.modes()</code> method.
2	Print the <code>ModelElement.info_parameter_table()</code> of <code>Cavity</code> objects.
4	See <code>Model.print_mismatches()</code> .
8	Display the <code>BeamTraceSolution</code> via printing return of <code>Model.beam_trace()</code> .
16	See <code>Model.print_space_gouys()</code> .
32	Use <code>KnmDetector</code> objects.
64	Use <code>ModeMismatchDetector</code> objects.
128	Draw the <code>TraceForest</code> via printing <code>Model.trace_forest</code> .

Syntaxが変わった

https://finesse.docs.ligo.org/finesse3/usage/legacy_support.html#legacy-syntax

https://finesse.docs.ligo.org/finesse3/usage/kat_script.html#syntax

https://finesse.docs.ligo.org/finesse3/getting_started/migration_example.html

Components

Legacy name(s)	New name(s)	Python API
<code>bs</code> <code>bs1</code> <code>bs2</code> <code>beamsplitter</code>	<code>bs</code>	<code>Beamsplitter</code>
<code>cav</code> <code>cavity</code>	<code>cav</code> <code>cavity</code>	<code>Cavity</code>
<code>dbb</code>	<code>dbb</code>	<code>DirectionalBeamsplitter</code>
<code>gauss</code> <code>gauss*</code> <code>gauss**</code>	<code>gauss</code>	<code>Gauss</code>
<code>gouy</code>	<code>gouy</code>	<code>Gouy</code>

**Model.parse()
-> model.parse_legacy()**

Script -> nodeの指定方法が変更

```
M1 = Mirror("M1")  
print(M1.p1)  
print(M1.p2)
```

```
bs IMC1 T=0.006 L=6e-6 alpha=&imc_alpha  
s lIMC12 IMC1.p3 IMC2.p1 L=&imc_length_side  
bs IMC2 T=0.006 L=6e-6 alpha=&imc_alpha  
s lIMC23 IMC2.p2 IMC3.p1 L=&imc_length_diag
```

Cav command

```
cav cav_IMC IMC1.p3.o
```

Qnoised

```
qnoisedS NSR 1 $fs 0 nout
```

```
qnoised NSR BS.p4.o nsr=true
```

attr廃止

```
m1 ETM 5e-06 5e-05 0.0 nETM1 nETM2  
attr EMAX Rcx 25  
attr EMAX Rcy 20
```

```
m ETM T=1e-5 L=1e-6 Rc=10
```

パラメータの文の中で変数を使えるようになった

```
m m2 R=&m1.R*0.5 T=1-&m1.R*0.5 phi=cos(&l1.P/10)
```