Visible Light Cavity Update

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Input Parameters

- Initial q = 0.13 + 0.0257i
- Target q = 0.275 + 0.1854i
- Starting z = 0m
- Target z = 3m
- ITM ROC = 0.4m

z1   z2   z3

Beam waist
ω_0 = 0.066mm
z = 0

f_2

f_3

ROC:
-0.4m

ROC:
0.4m
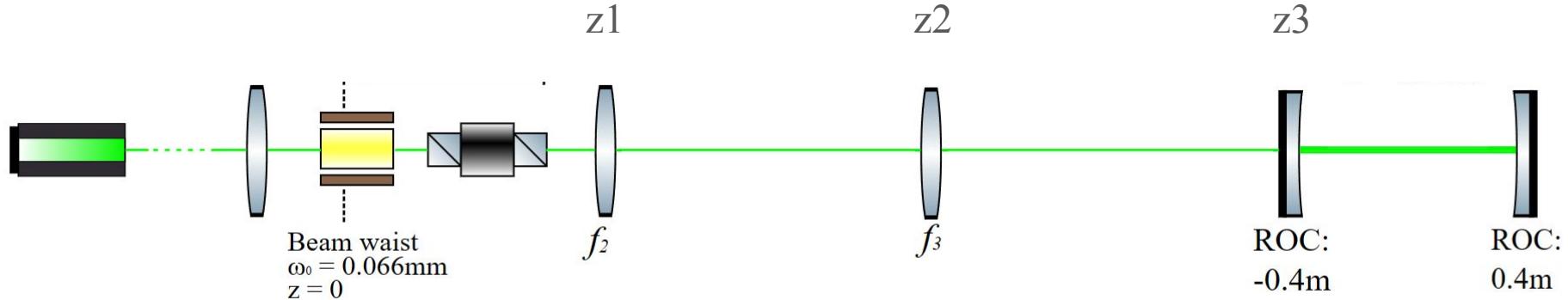
A La Mode Code

- Many possible mode matching solutions
- Length defined in z position from input q parameter
- Best option with lenses we have:
    - Lens1 = 0.0623m
    - Lens2 = 0.432m
    - ITM = 0.950m
    - *f2* = 0.05m
    - *f3* = 0.15m
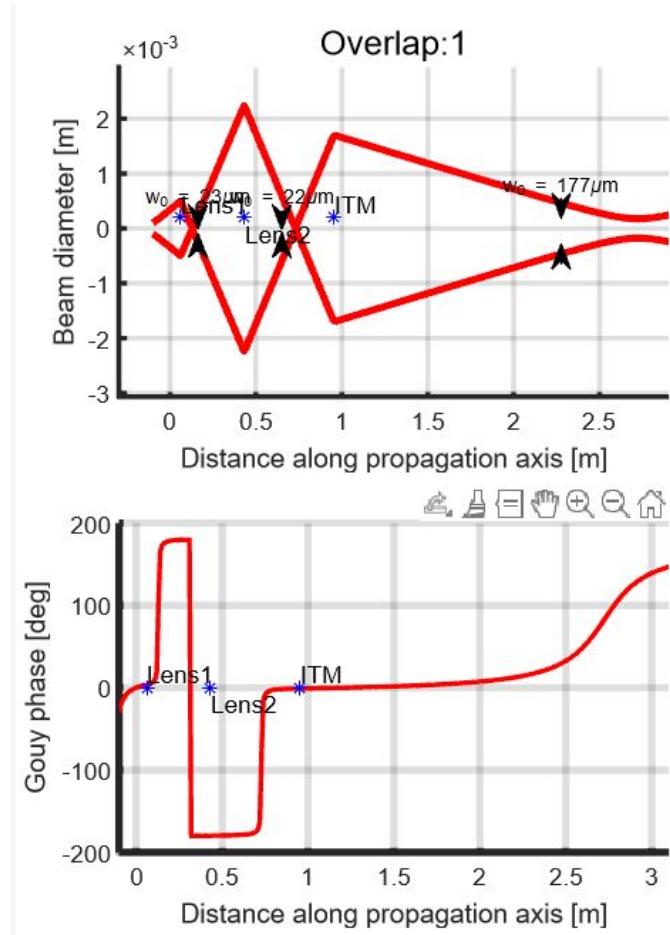
Output

```
sensitivityList =

  224.3215
  319.8957


overlapList =

    1.0000
    1.0000


 =

    {label}     {z (m) }     {type          }     {parameters          }
    {-----}     {----- }     {----          }     {----------          }
    {Lens1}     {0.0623}     {lens          }     {focalLength: 0.0500}
    {Lens2}     {0.4320}     {lens          }     {focalLength: 0.1500}
    {ITM  }     {0.9544}     {curved mirror}      {ROC: 0.4000        }




 =

    {label}     {z (m) }     {type          }     {parameters          }
    {-----}     {----- }     {----          }     {----------          }
    {Lens1}     {0.0099}     {lens          }     {focalLength: 0.1500}
    {Lens2}     {0.4370}     {lens          }     {focalLength: 0.0500}
    {ITM  }     {0.7104}     {curved mirror}      {ROC: 0.4000        }
```

Cross check with FINESSE failed

- Used same parameters that A La Mode output

- No reasonable output

- Yet to find solution that outputs good mode matching in both FINESSE and A La Mode
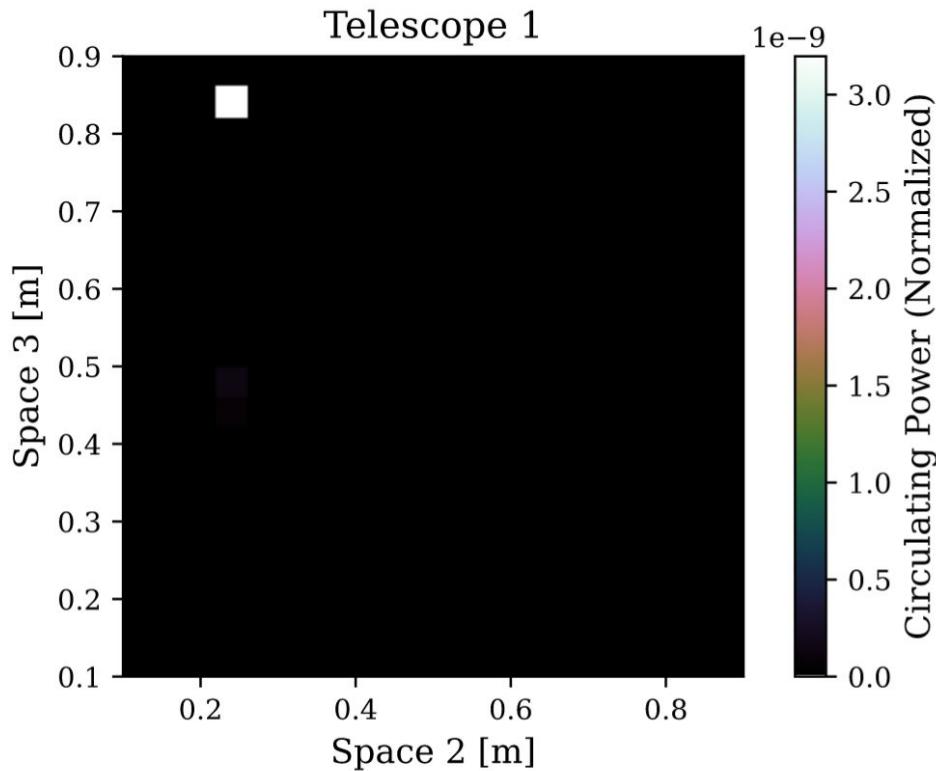
Next Steps

- Spent time looking through many solutions → Keep searching solutions with more focal lengths in FINESSE and A La Mode

- Debug FINESSE?