setup

overhead

tag

In[124]:=
```
home = "ert/mercury/parse/";
Get["utility modules.m", Path → dirPack];
stamp1;
```

```
maximum memory: 0.187447 GB
seed file: /Users/dantopa/Mathematica_files/nb/seed 19_12.nb
user: dantopa, CPU: Xiuhcoatl,  MM v. 12.0.0 for Mac OS X x86
date: Jan 23, 2020, time: 23:19:41
nb: /Users/dantopa/Mathematica_files/nb/ert/mercury/parse/mercury mom parser 02.nb
```

modules, functions, settings, ...

1 point to data

In[132]:=
```
dirMoM = "/Users/dantopa/Dropbox/2nd-generation/RCS-project/linux/ubuntu/";
```

2 read data file

In[139]:=
```
strmList = Import[dirMoM <> "sphereCourse.4112.txt", "Data"]
Λ = Dimensions[strmList]
```

Out[139]=
```
{ , ---| Run Date: January   21, 2020;    Time: 13:09:36, ··· 51907 ···,
 ------------------------------------------------------------------------
   ----}
```

large output | show less | show more | show all | set size limit...

Out[140]=
```
{51910}
```

3 mark data sets

```
(* each data set represents a unique frequency *)
```

In[141]:=
```
census = {};
Table[
  If[StringContainsQ[strmList[[k]], "  Freq   "], AppendTo[census, k]]
  , {k, Length[strmList]}];
census
m = Length[census]
```

Out[143]=
```
{486, 1001, 1516, 2031, 2546, 3061, 3576, 4091, 4606, 5121, 5636, 6151, 6666, 7181,
 7696, 8211, 8726, 9241, 9756, 10 271, 10 786, 11 301, 11 816, 12 331, 12 846,
 13 361, 13 876, 14 391, 14 906, 15 421, 15 936, 16 451, 16 966, 17 481, 17 996, 18 511,
 19 026, 19 541, 20 056, 20 571, 21 086, 21 601, 22 116, 22 631, 23 146, 23 661, 24 176,
 24 691, 25 206, 25 721, 26 236, 26 751, 27 266, 27 781, 28 296, 28 811, 29 326, 29 841,
 30 356, 30 871, 31 386, 31 901, 32 416, 32 931, 33 446, 33 961, 34 476, 34 991, 35 506,
 36 021, 36 536, 37 051, 37 566, 38 081, 38 596, 39 111, 39 626, 40 141, 40 656, 41 171,
 41 686, 42 201, 42 716, 43 231, 43 746, 44 261, 44 776, 45 291, 45 806, 46 321,
 46 836, 47 351, 47 866, 48 381, 48 896, 49 411, 49 926, 50 441, 50 956, 51 471}
```

Out[144]=
```
100
```

4 parse a line

```
(* sweep through the output file and convert
 the text to complex values for the electric field *)
```

modules

In[164]:=
```
λ = 14; (* length of character string *)
```

In[165]:=
```
Clear[strToNumber];
strToNumber[str_String] := Module[{},
    sign = 1;
    mant = StringTake[str, {2, 10}];
    exp = StringTake[str, {12, 14}];
    sig = StringTake[str, {1}];
    If[sig == "-", sign = -1];
    number = sign ToExpression[mant] 10^ToExpression[exp];
    Return[number]
   ];
strToNumber[" 0.2332290E-01"]
```

Out[167]=
```
0.0233229
```

In[168]:=
```
Clear[grabComplex];
grabComplex[str_String] := Module[{},
    real = strToNumber[StringTake[str, {1, λ}]];
    imag = strToNumber[StringTake[str, {λ + 3, 2 λ + 2}]];
    Return[real + i imag]
   ];
grabComplex[" 0.2332290E-01, -0.8848302E-04"]
```

Out[170]=
```
0.0233229 - 0.000088483 i
```

test a line

In[171]:=
```
myStream = OpenRead[dirMoM <> "sphereCourse.4112.txt"];
Do[
 data = ReadLine[myStream]
 , {k, 485}]
```

In[173]:=
```
Close[myStream]
```

Out[173]=
```
/Users/dantopa/Dropbox/2nd-generation/RCS-project/linux/ubuntu/sphereCourse.4112.
  txt
```

In[174]:=
```
α = 29;
gap = 34;
fields = 4;
```

In[177]:=
```
Table[
 start = α + (k - 1) gap;
 grabComplex[StringTake[data, {start, start + 2 λ + 2}]]
 , {k, fields}]
```

Out[177]=
$$\{0.0233229 - 0.000088483\,i,\ -0.000168663 - 2.62138 \times 10^{-6}\,i,\ -0.000168663 - 2.62956 \times 10^{-6}\,i,\ 0.0227787 - 0.0000928122\,i\}$$

5 read a set

```
(* read a measurement for fixed ν: 0 - 360 degrees *)
```

In[228]:=
```
lines = {378, 854};
ν = 10 000 000;
```

In[230]:=
```
myStream = OpenRead[dirMoM <> "sphereCourse.4112.txt"];
Do[
 data = ReadLine[myStream]
 , {k, lines[[1]] - 1}]
```

In[232]:=
```
tbl = Table[
   data = ReadLine[myStream];
   Table[
    start = α + (k - 1) gap;
    grabComplex[StringTake[data, {start, start + 2 λ + 2}]]
    , {k, fields}]
   , {j, 0, 360}];
```

In[233]:=
```
Close[myStream];
```

In[234]:=
```
Abs /@ tbl
```

Out[234]=
```
{{0.0233327, 0.0000888454, 0.0000888454, 0.0227505},
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 {0.023333, 0.0000835492, 0.0000835489, 0.0227486},
 {0.0233332, 0.0000808622, 0.0000808616, 0.0227476},
 {0.0233333, 0.0000781502, 0.0000781495, 0.0227467},
 {0.0233334, 0.000075414, 0.0000754135, 0.0227457},
 {0.0233335, 0.0000726521, 0.0000726527, 0.0227448},
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 {0.0233341, 0.0000556544, 0.0000556528, 0.0227398},
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```

```
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