In[1]:=
```
{NotebookFileName[], DateString[]}
```
Out[1]=
```
{H:\morpheus\worm2\worm2.nb, Sat 24 Apr 2021 11:08:35}
```

Setup

In[2]:=
```
Needs["Developer`"]
```

In[3]:=
```
$HistoryLength = 5
```
Out[3]=
```
5
```

In[4]:=
```
curDir = FileNameDrop[NotebookFileName[]]
```
Out[4]=
```
H:\morpheus\worm2
```

In[5]:=
```
modelName = FileNameTake[curDir, -1]
```
Out[5]=
```
worm2
```

In[6]:=
```
logFile = "logger.csv"
```
Out[6]=
```
logger.csv
```

Sweep 7

In[7]:=
```
sweep = 7
```
Out[7]=
```
7
```

In[8]:=
```
sweepDir = FileNameJoin[{curDir, modelName <> "_sweep_" <> ToString[sweep]}]
```
Out[8]=
```
H:\morpheus\worm2\worm2_sweep_7
```

In[9]:=
```
sweeps7 = FileNames[modelName <> "*", sweepDir]
```
Out[9]=
```
{H:\morpheus\worm2\worm2_sweep_7\worm2_76, H:\morpheus\worm2\worm2_sweep_7\worm2_77,
 H:\morpheus\worm2\worm2_sweep_7\worm2_78, H:\morpheus\worm2\worm2_sweep_7\worm2_79,
 H:\morpheus\worm2\worm2_sweep_7\worm2_80, H:\morpheus\worm2\worm2_sweep_7\worm2_81,
 H:\morpheus\worm2\worm2_sweep_7\worm2_82, H:\morpheus\worm2\worm2_sweep_7\worm2_83,
 H:\morpheus\worm2\worm2_sweep_7\worm2_84, H:\morpheus\worm2\worm2_sweep_7\worm2_85}
```

In[10]:=
```
sweep7a = Import[
  FileNameJoin[{sweeps7[[1]], logFile}],
  {"CSV", "Dataset"}
  , HeaderLines → 1
 ]
```

Out[10]=

time	0
cell.id	1
7 total ›	
time	0
cell.id	2
7 total ›	
time	0
cell.id	3
7 total ›	
time	0
cell.id	4
7 total ›	
time	0
cell.id	5
7 total ›	
time	0
cell.id	6
7 total ›	
time	0
cell.id	7
7 total ›	
time	0
cell.id	8
7 total ›	
time	0
cell.id	9
7 total ›	
time	0
cell.id	10
7 total ›	
⤒ ∧ rows 1–10 of 202 ∨ ⤓	

In[11]:=
```
sweep7a[[1]]["MKtemp"]
```

Out[11]=
```
0.2
```

In[12]:=
```
sweep7a[[1]] // Keys
```

Out[12]=

time
cell.id
cell.center.x
cell.center.y
delta_r.x
delta_r.y
MKtemp

In[13]:=
```
sweep7a[GroupBy["time"]][[-1]]
```

Out[13]=

time	cell.id	cell.center.x	cell.center.y	delta_r.x	delta_r.y	MKtemp
10000	1	474.3	478.55	−25.7	−21.45	0.2
10000	2	483.05	477.2	−17.95	−22.8	0.2
10000	3	504.8	469.65	2.8	−30.35	0.2
10000	4	491.65	478.6	−11.35	−21.4	0.2
10000	5	497.9	474.55	−6.1	−25.45	0.2
10000	6	502.95	462.7	−2.05	−37.3	0.2
10000	7	529.15	479.9	23.15	−20.1	0.2
10000	8	534.85	489.15	27.85	−10.85	0.2
10000	9	531.75	467.55	23.75	−32.45	0.2
10000	10	523.8	470	14.8	−30	0.2
10000	11	493.9	465.8	−6.1	−35.2	0.2
10000	12	479.6	485.1	−21.4	−15.9	0.2
10000	13	503.5	484.55	1.5	−16.45	0.2
10000	14	488.3	488.35	−14.7	−12.65	0.2
10000	15	506.8	477	2.8	−24	0.2
10000	16	517.75	462.3	12.75	−38.7	0.2
10000	17	508.6	483.9	2.6	−17.1	0.2
10000	18	516.8	483.2	9.8	−17.8	0.2
10000	19	533.3	497.7	25.3	−3.3	0.2
10000	20	516.3	468.3	7.3	−32.7	0.2

rows 1–20 of 100

In[14]:=
```
sweep7a[GroupBy["time"]][[-1]][StandardDeviation]
```

Out[14]=

time	0.0
cell.id	29.0115
cell.center.x	20.1602
cell.center.y	20.7856
delta_r.x	17.6838
delta_r.y	18.2674
MKtemp	0.0

In[15]:=
```
estimateDiffusion[
  sweepDir_String,
  logName_ : logFile
 ] := Module[{sweepds, tfinal, temp, σx, σy},
  sweepds = Import[
    FileNameJoin[{sweepDir, logName}],
    {"CSV", "Dataset"}
    , HeaderLines → 1
   ];
  sweepds = sweepds[GroupBy["time"]][[-1]];
  temp = sweepds[[1]]["MKtemp"];
  tfinal = sweepds[[1]]["time"];
  {σx, σy} = sweepds[All, {"delta_r.x", "delta_r.y"}][StandardDeviation] /@
    {"delta_r.x", "delta_r.y"};
  {temp, tfinal, (σx^2 + σy^2)/(4 tfinal)}
 ]
```

In[16]:=
```
estimateDiffusion[sweeps7[[1]]]
```

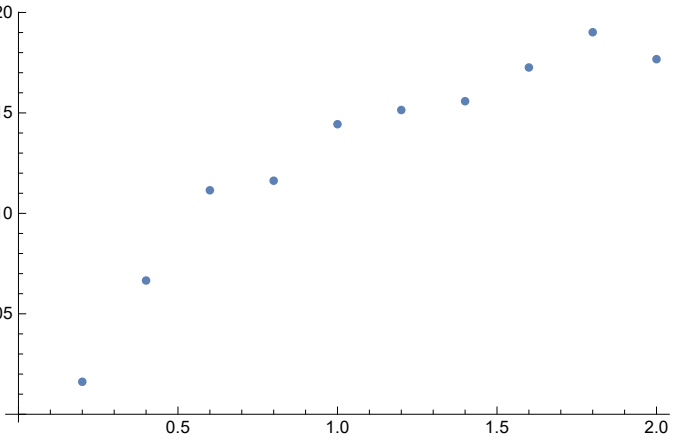
Out[16]=
```
{0.2, 10000, 0.0161604}
```

In[17]:=
```
estimateDiffusion /@ sweeps7
```

Out[17]=
```
{{0.2, 10000, 0.0161604}, {0.4, 10000, 0.0665741},
 {0.6, 10000, 0.111487}, {0.8, 10000, 0.116239},
 {1, 10000, 0.144375}, {1.2, 10000, 0.151445}, {1.4, 10000, 0.155824},
 {1.6, 10000, 0.172607}, {1.8, 10000, 0.190152}, {2, 10000, 0.176751}}
```

In[18]:=
```
ListPlot[(estimateDiffusion /@ sweeps7)[[;; , {1, 3}]]
]
```

Out[18]=



Sweep 8

In[19]:=
```
sweep = 8
```

Out[19]=
```
8
```

In[20]:=
```
sweepDir = FileNameJoin[{curDir, modelName <> "_sweep_" <> ToString[sweep]}]
```

Out[20]=
```
H:\morpheus\worm2\worm2_sweep_8
```

In[21]:=
```
sweeps8 = FileNames[modelName <> "*", sweepDir]
```

Out[21]=
```
{H:\morpheus\worm2\worm2_sweep_8\worm2_86, H:\morpheus\worm2\worm2_sweep_8\worm2_87,
 H:\morpheus\worm2\worm2_sweep_8\worm2_88, H:\morpheus\worm2\worm2_sweep_8\worm2_89,
 H:\morpheus\worm2\worm2_sweep_8\worm2_90, H:\morpheus\worm2\worm2_sweep_8\worm2_91,
 H:\morpheus\worm2\worm2_sweep_8\worm2_92, H:\morpheus\worm2\worm2_sweep_8\worm2_93,
 H:\morpheus\worm2\worm2_sweep_8\worm2_94, H:\morpheus\worm2\worm2_sweep_8\worm2_95}
```

In[22]:=
```
estimateDiffusion /@ sweeps8
```

Out[22]=
```
{{1, 10000, 0.144375}, {2, 10000, 0.176751}, {3, 10000, 0.196309},
 {4, 10000, 0.192582}, {5, 10000, 0.226427}, {6, 10000, 0.23304}, {7, 10000, 0.1751},
 {8, 10000, 0.211865}, {9, 10000, 0.247846}, {10, 10000, 0.20049}}
```

In[23]:=
```
ListPlot[Join[
   estimateDiffusion /@ sweeps7, estimateDiffusion /@ sweeps8
  ][[ ;; , {1, 3}]]
]
```

Out[23]=