FiniteT

Hosotani solution for 2-flavor Schwinger model

In [1]:

```
γ = 0.5772156649 # Euler-Mascheroni constant
```

In [2]:

```
# input parameters:
β = 4.0
L = 10 # N_t
```

$$\mu = \sqrt{\frac{2}{\pi \beta}}$$

In [3]:

```
μ = n(sqrt(2 / (pi * β))) # eta-mass
```

In [4]:

```
μ
```

Out[4]:

```
0.398942280401433
```

In [5]:

```
μ * L # this should be >> 1
```

Out[5]:

```
3.98942280401433
```

In [6]:

```
1.0 / (2.0 * L * sqrt(μ * L)) # solution is valid for m << than this number
```

Out[6]:

```
0.0250331194352152
```

In [7]:

```
k = n(4 * sqrt(2) * sqrt(μ * L * exp(γ) / (4 * pi))) # slope for small m
```

In [8]:

```
k
```

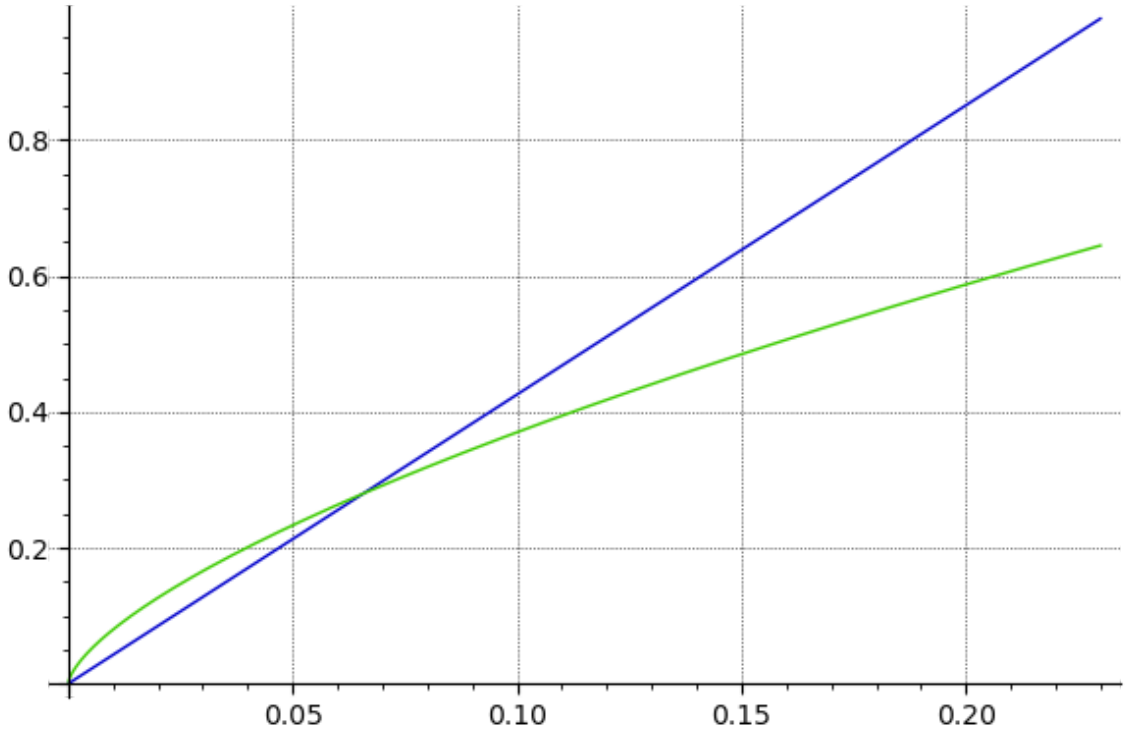
Out[8]:

```
4.25369041995704
```

In [9]:

```
var('m')
plot([k * m, (4 * exp(2 * γ) * μ * m^2)^(1/3)], 0.0001, 0.23, gridlines = True)
```

Out[9]:



Hip, 2021-08-10