The Integrand in 3 Dimensions:

In[1]:=
```
x[k_, l_] := k * l
```

In[2]:=
```
R_x_[θ_] := ((1.334 * E^(-x / Cos[θ])) * Cos[θ]) / (1 - 1.334^2 * (Sin[θ])^2)^(1/2)
```

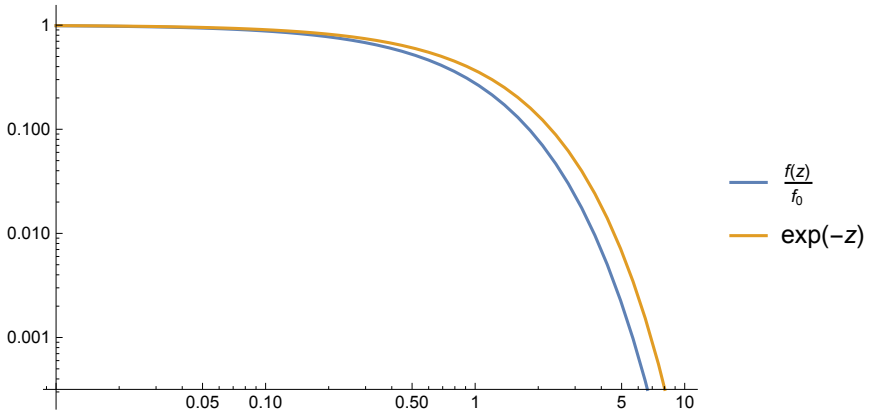
In[3]:=
```
f[z_] := NIntegrate[2 * Pi * Sin[θ] * R_z[θ], {θ, 0, ArcSin[1 / 1.334]}] / (2 * Pi)
```

In[4]:=
```
f_0 = f[0]
```

Out[4]=
```
0.749625
```

In[5]:=
```
LogLogPlot[{f[z] / f_0, Exp[-z]}, {z, 0.01, 10}, PlotLegends → "Expressions"]
```

Out[5]=



Difference in normalized case:

In[12]:=
```
dev[z_] := (f[z] / f_0) / Exp[-z]
```

In[13]:=
```
dev[2.3]
```

Out[13]=
```
0.542567
```

In[14]:=
```
dev[4.6]
```

Out[14]=
```
0.337781
```

Difference when not normalized :

In[15]:=
```
dev[z_] := (f[z]) / Exp[-z]
```

In[16]:=
```
dev[2.3]
```

Out[16]=
```
0.406722
```

In[17]:=
```
dev[4.6]
```

Out[17]=
```
0.253209
```