Rindler Space, $\mathcal{R}$, defined by

$$x = a^{-1} e^{a\xi} \cosh(a\eta)$$
$$t = a^{-1} e^{a\xi} \sinh(a\eta)$$

describes a family of accelerated (uniformly) observers in spacetime $\mathbb{R}^{1,1}$. QFT on this space $\mathcal{R}$ is a ~~finite~~ nonzero temperature QFT. A system S accelerating, in other words following a $\xi = \text{const.}$ worldline feels itself embedded in thermal bath of particles at the "Unruh" temperature.

One can ascribe the temperature to the space itself, or as an interaction between S and the space. Schlicht has bolstered the latter POV by calculating the response function for an extended yet small object executing an arbitrary trajectory. In the infinitesimal limit the response function has been calculated and leads to a nonthermal response. The response function is a function of the velocities (2 in $\mathbb{R}^{1,1}$ 4-velocities) of the particle and is therefore a function on $T^*\mathcal{R}$.

Some goals of this project are:

1) To incorporate the minimal length ~~and~~ (or minimal spacetime volume) in a theory on $\mathcal{R}$ and see the effect on the standard relation $T = \frac{a}{2\pi}$.
Noncommutative geometry generalization of $\mathcal{R}$ ~~must~~ is our chosen preliminary setup.
$\Delta r^0 \Delta r^1 \geq$ some fn of r^0 and r^1.
The fn in question is probabably $\frac{\theta_0}{2}\frac{1}{\sqrt{g}}$
which is equal to $\frac{\theta_0}{2} e^{-2\xi a}$
So ~~$\Delta r^0 \Delta r^1 \geq \theta_0$~~ $\boxed{\Delta r^0 \Delta r^1 \gtrsim e^{-2a\xi}}$
This implies that the minimal volume seems to vanish as the horizon is approached.

Remarkably, the uncertainty in the ~~at~~ Rindler time coordinate grows exponentially as a quantum particle is squashed up closer and closer to the horizon. It is quite obscure to me what this could possibly mean.

2. Determine if the SUR's (spacetime uncertainty relations) have an effect on the entropy (of the wedge)

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1. Make a <u>very</u> careful study of the standard derivation of Hawking flux, including the infalling matter
2. Make a very careful study of uncertainty relations of all kinds – stringy and quantum.