Title: An axiomatic avenue to AdS/CFT

Date: Dec 09, 2015 04:00 PM

URL: http://pirsa.org/15120031

Abstract: I will review a recent proposal for a top-down approach to AdS/CFT by A. Schwarz, which has the advantage of requiring few assumptions or extraneous knowledge, and may be of benefit to information theorists interested by the connections with tensor networks. I will also discuss ways to extend this approach from the Euclidean formalism to a real-time picture, and potential relationships with MERA.

AdS/CFT
an axiomatic avenue

Cédric Bény
Wissam Chemissany

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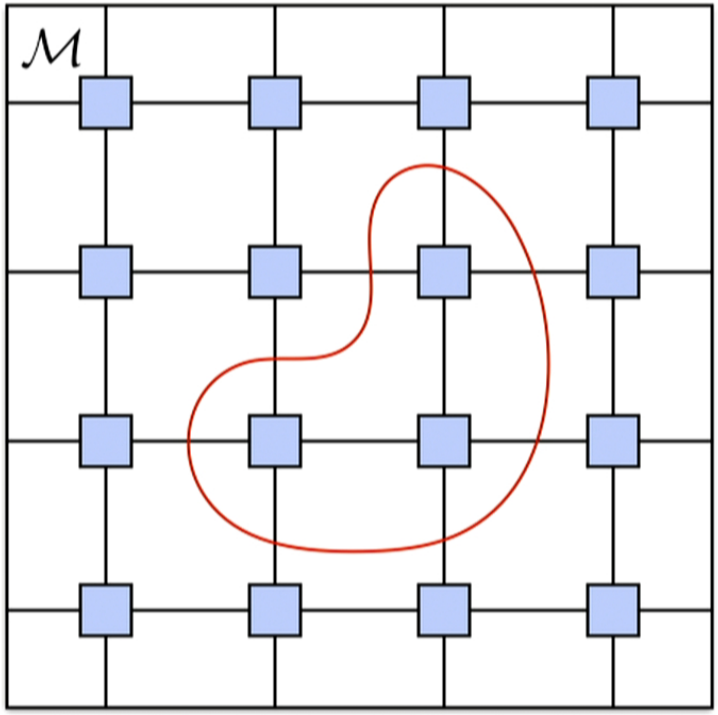
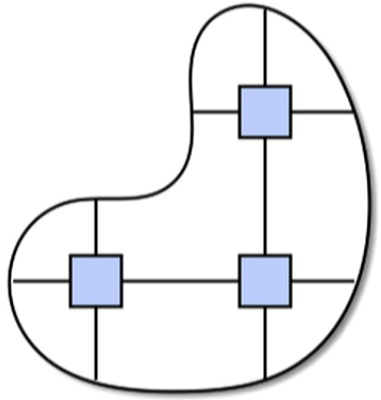
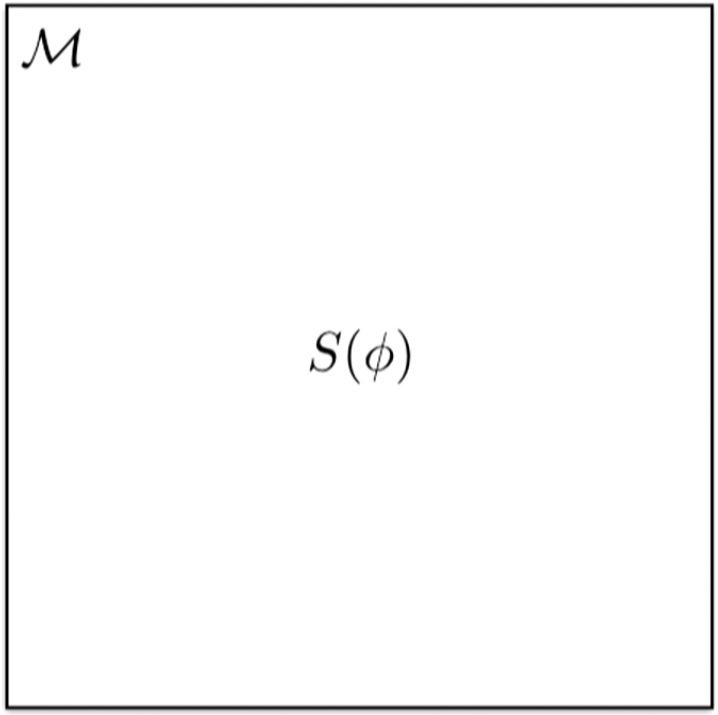
Tensor networks and path integrals


$\mathcal{M}$

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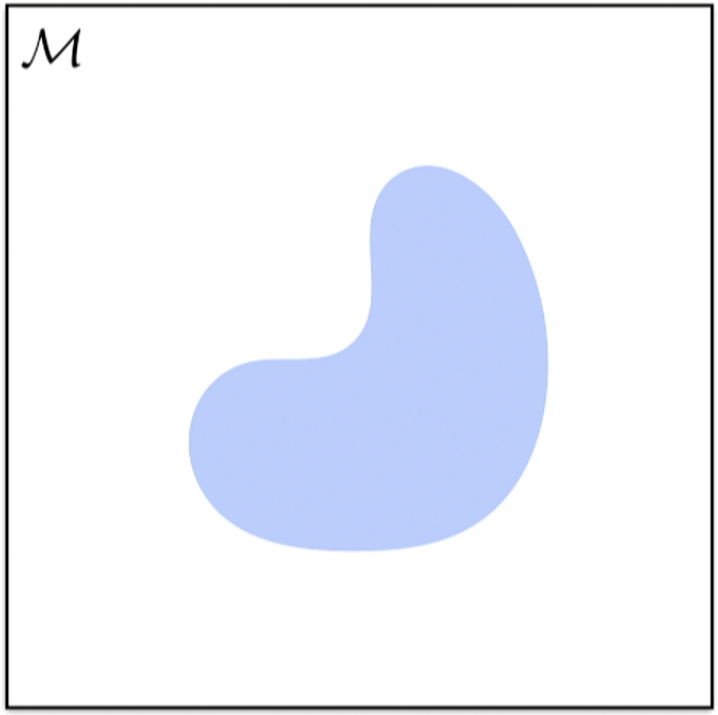
$S(\phi)$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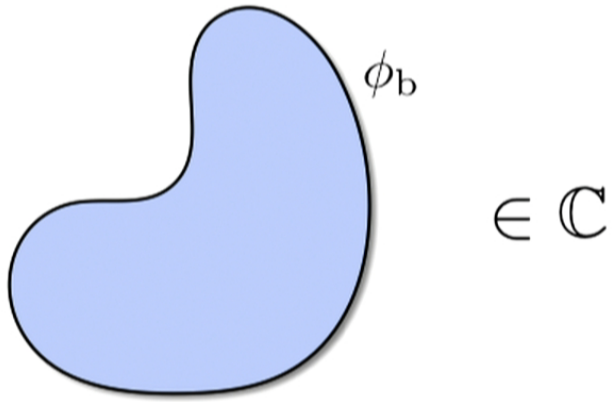
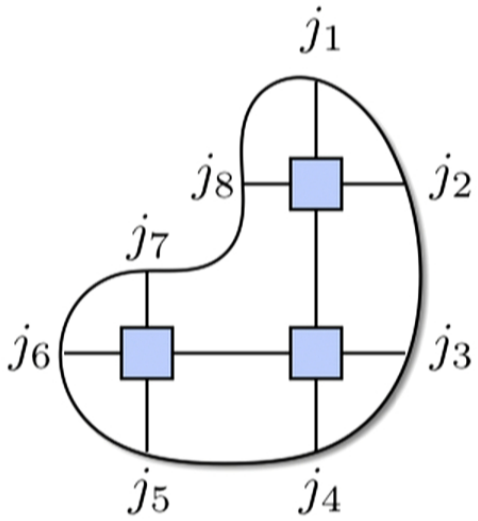

ϕ_b
$\in \mathbb{C}$



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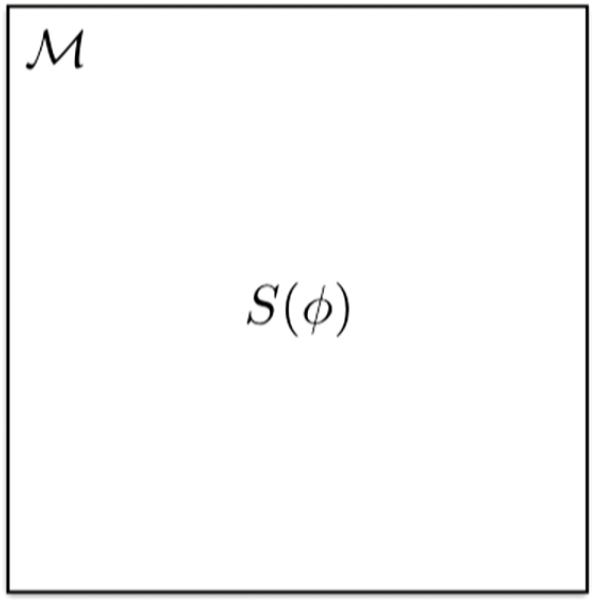
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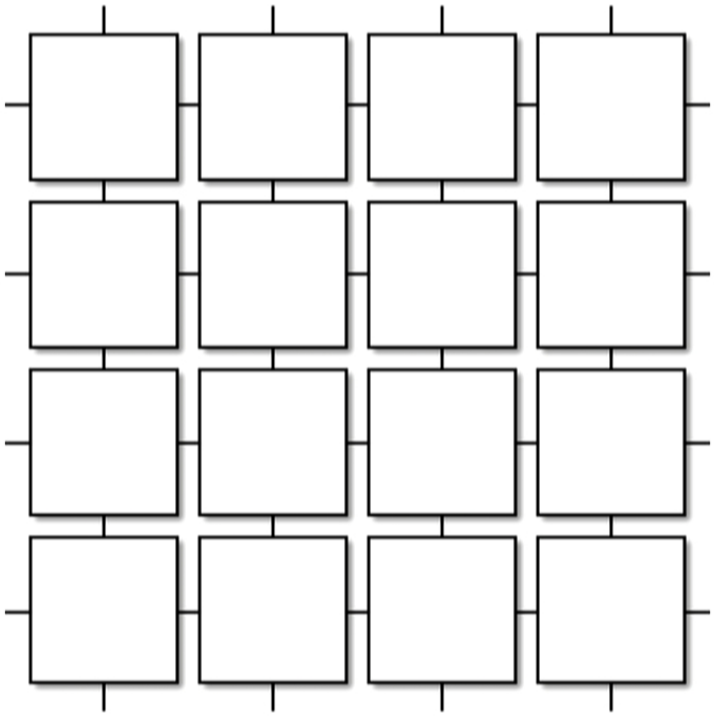

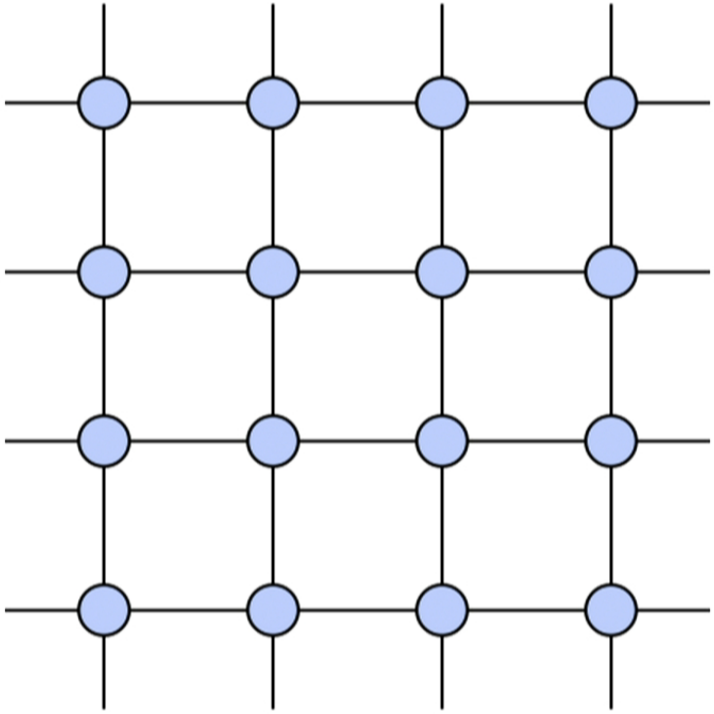

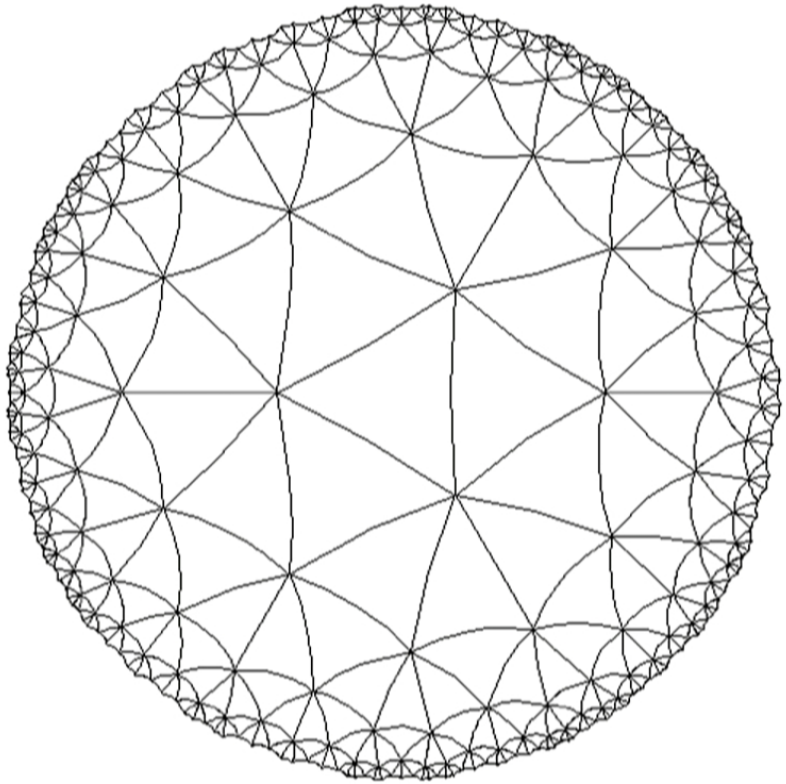

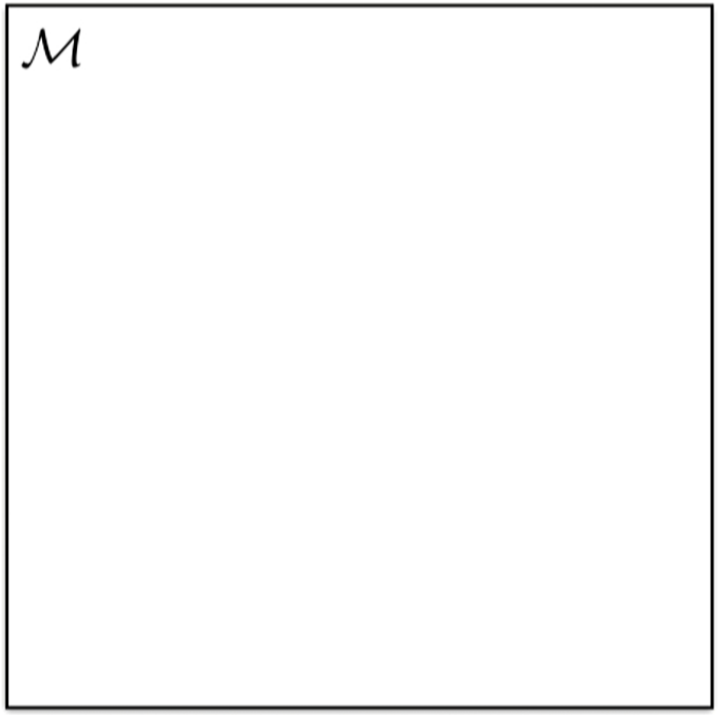
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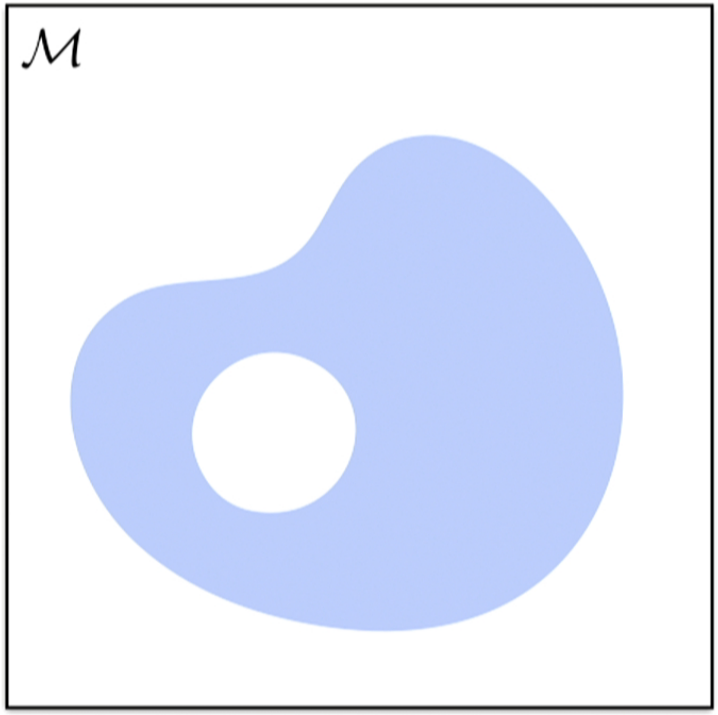
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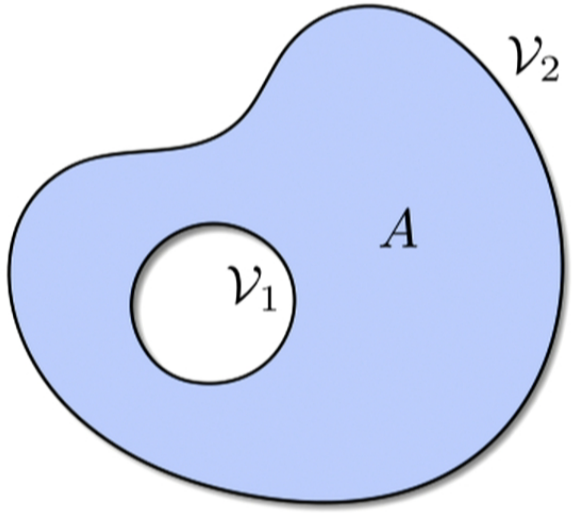
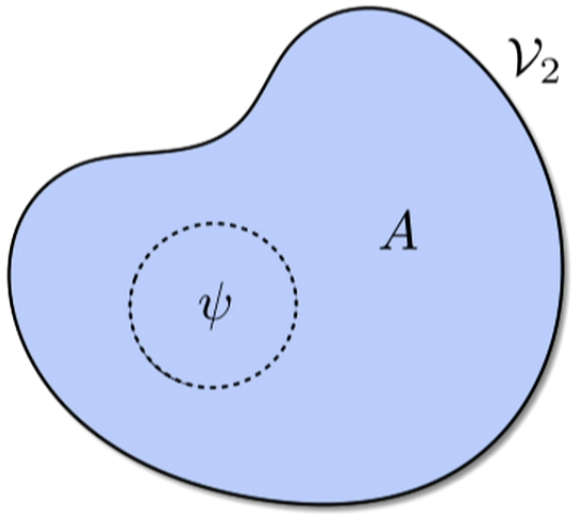
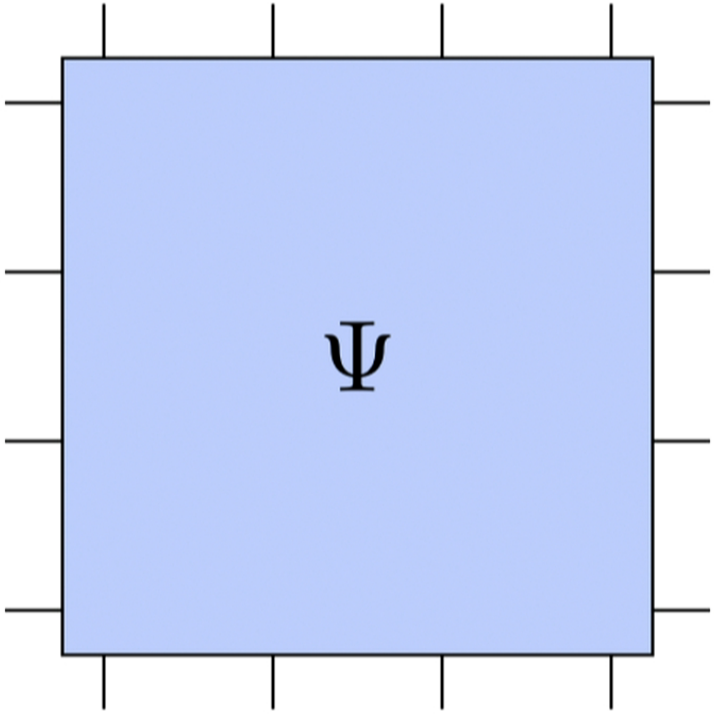


$$A \in \mathcal{V}_1 \otimes \mathcal{V}_2$$



$$A\psi \in \mathcal{V}_2$$

holography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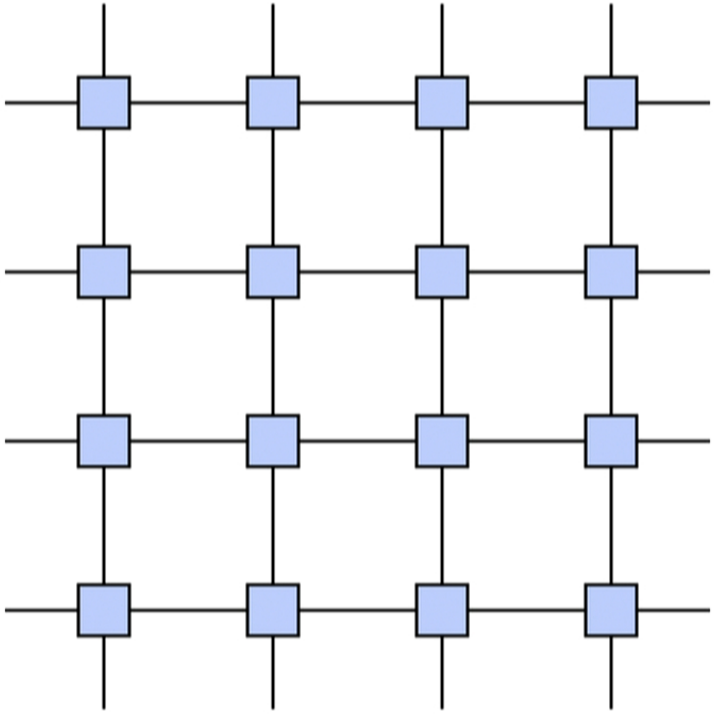

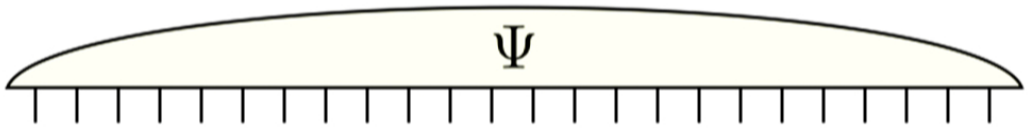
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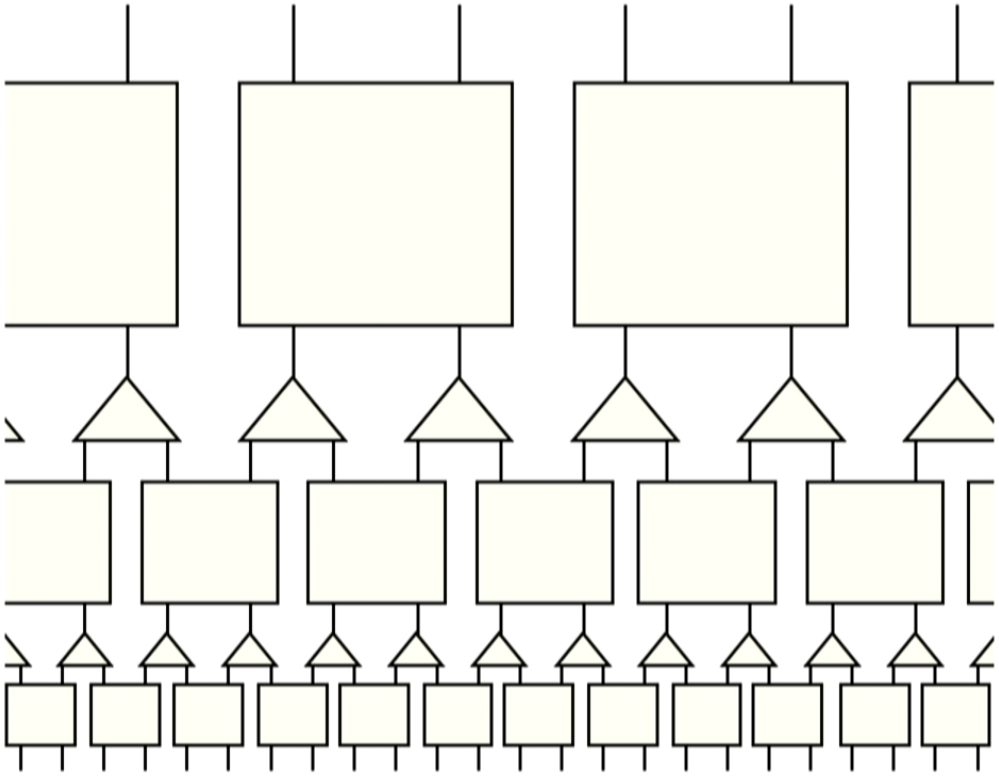
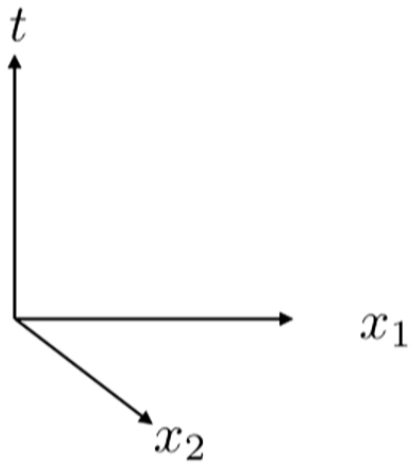


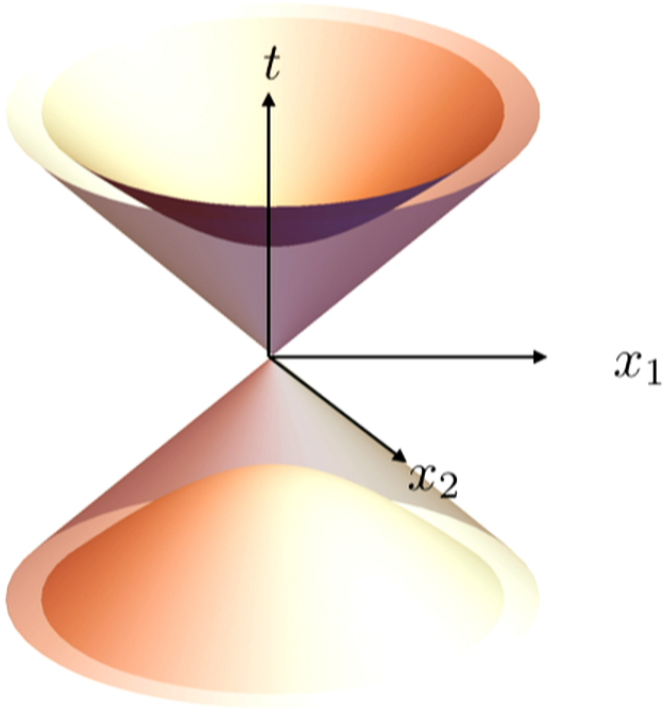
Hyperbolic space
&
de Sitter space

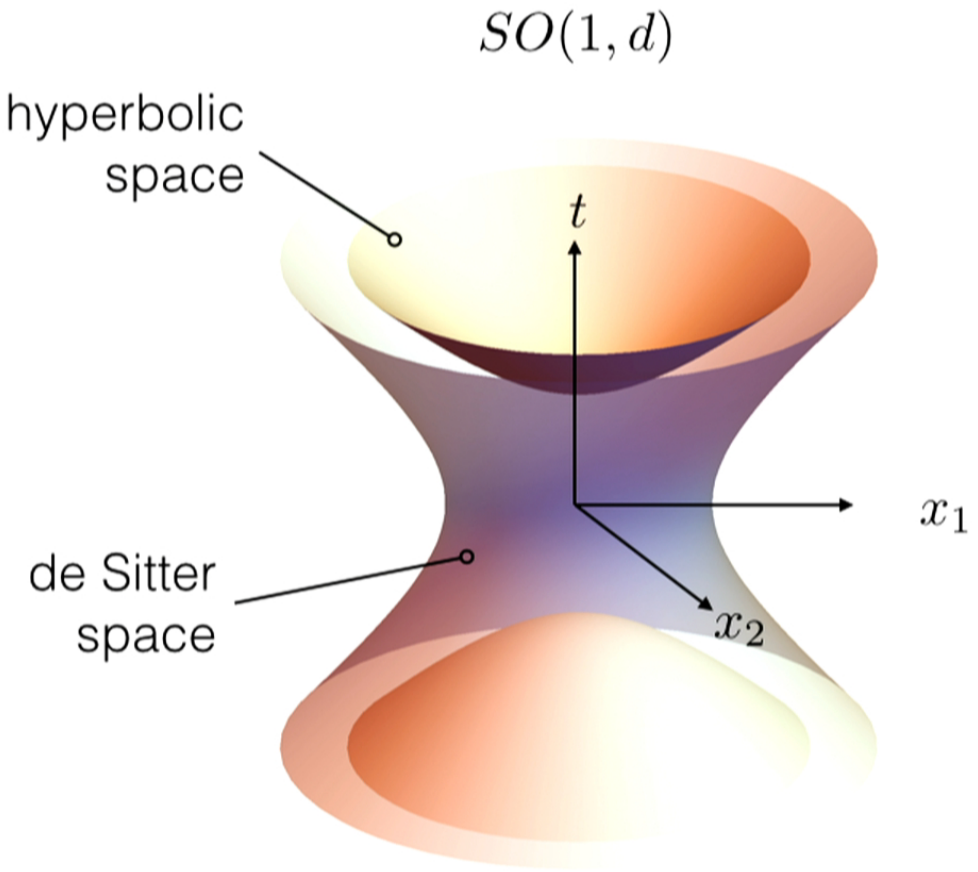
$\mathrm{Flat}(1,d)$

$SO(1,d)$



$SO(1,d)$




$SO(1,d)$
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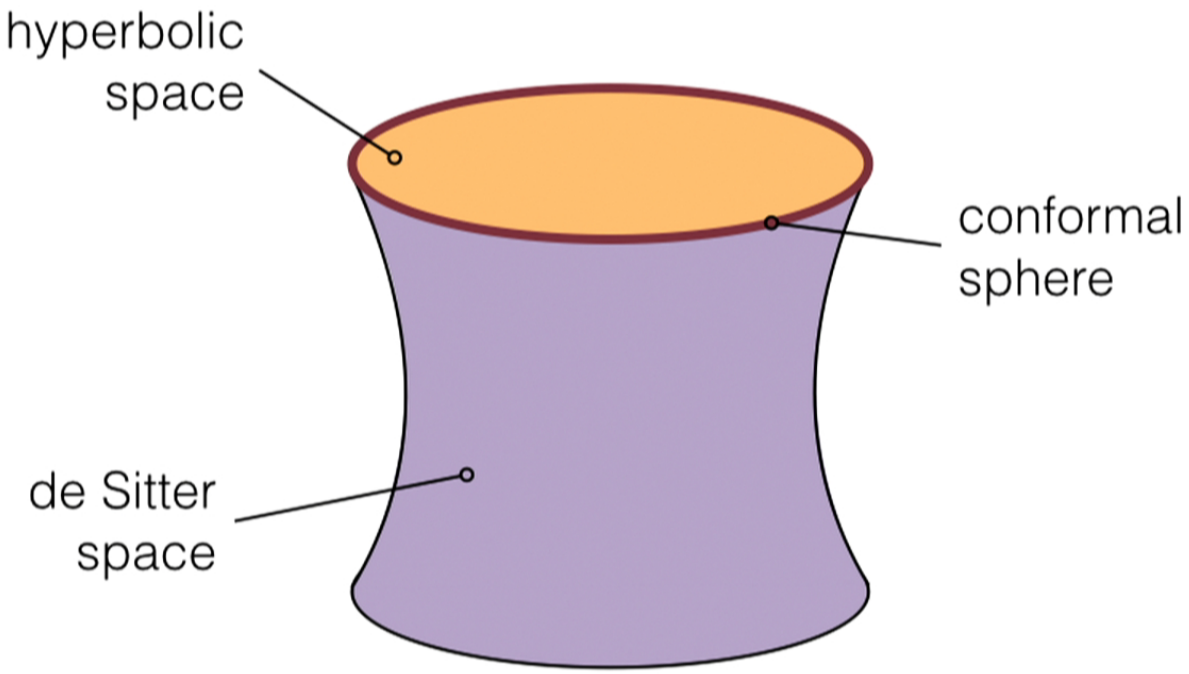
x_2


hyperbolic
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sphere
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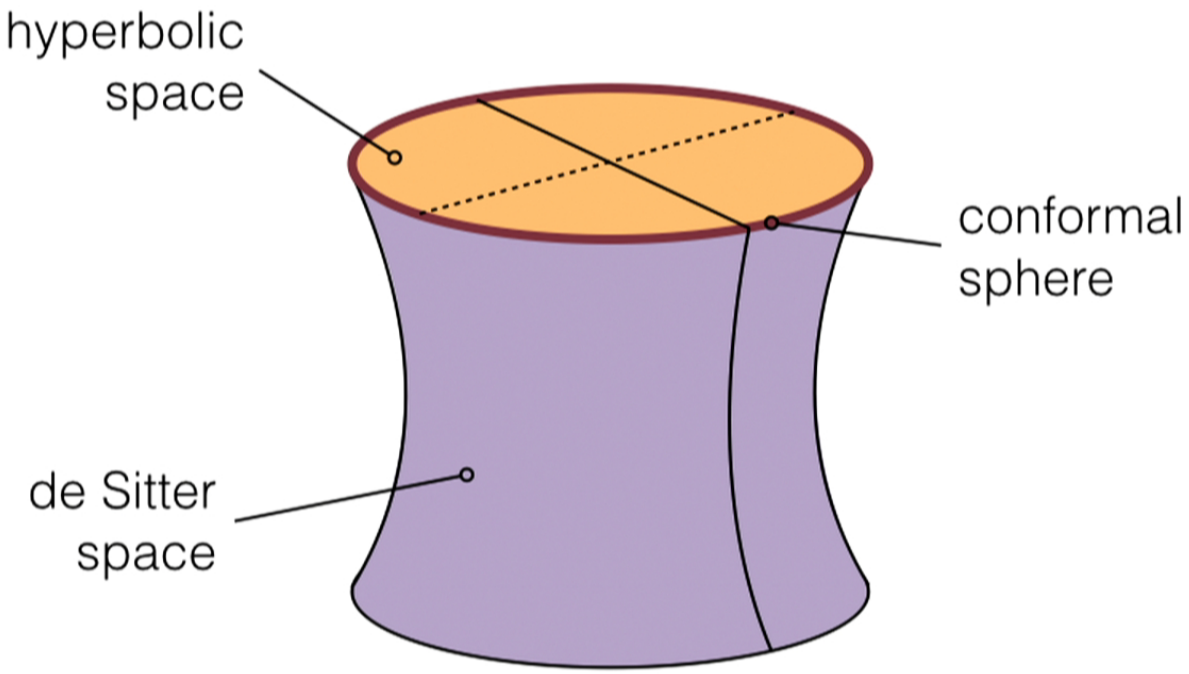
space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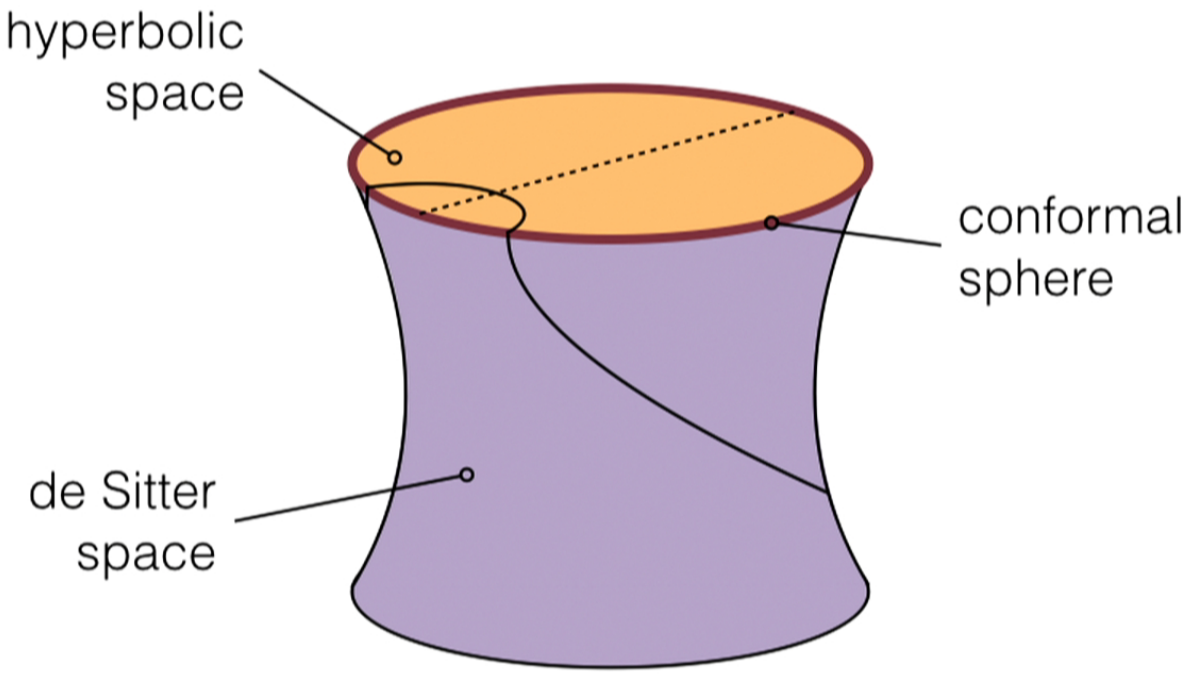
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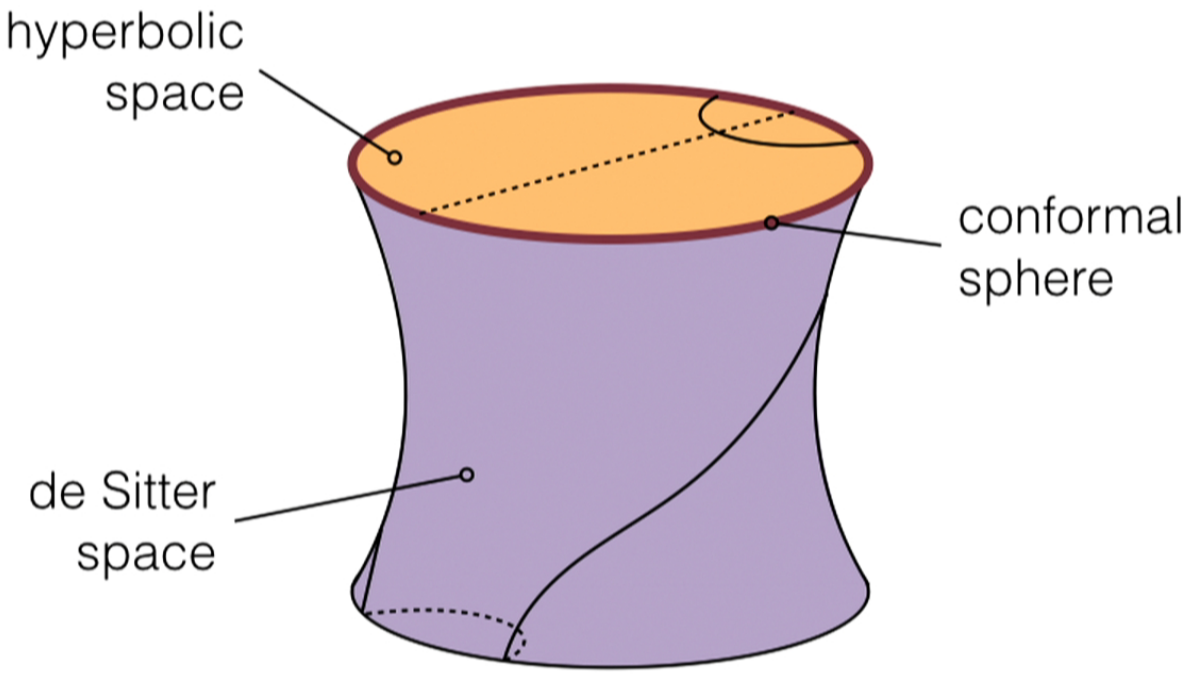
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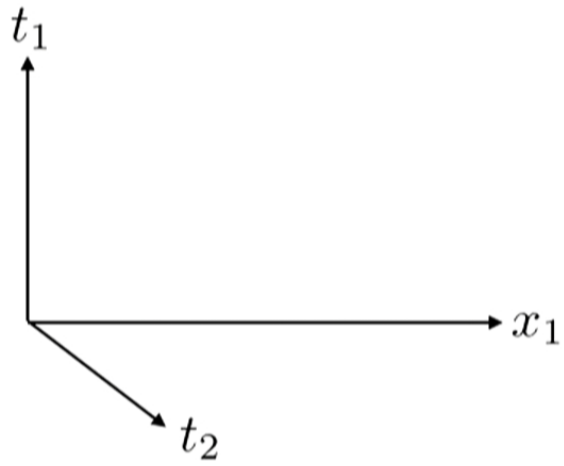
anti de Sitter space

$SO(2,d)$



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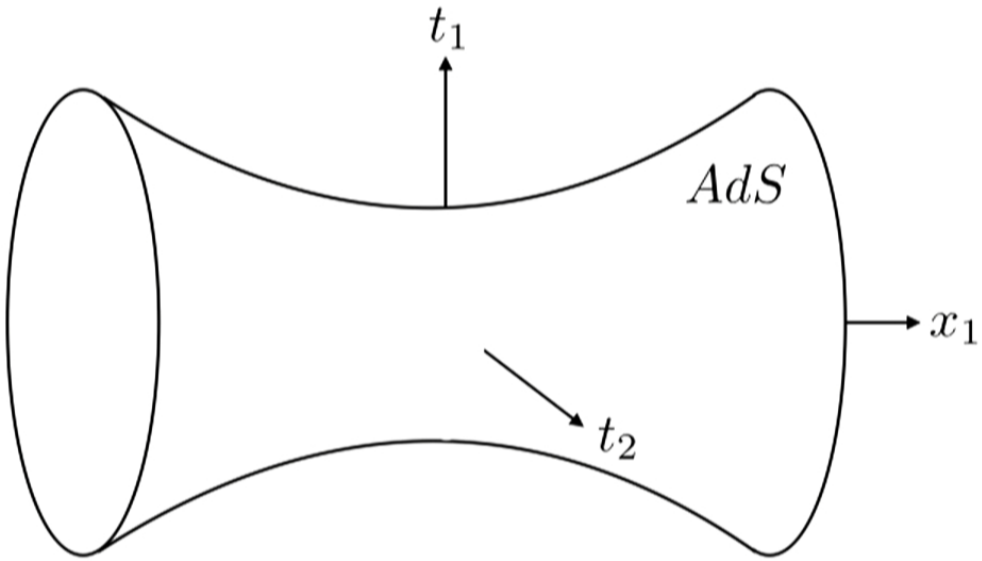

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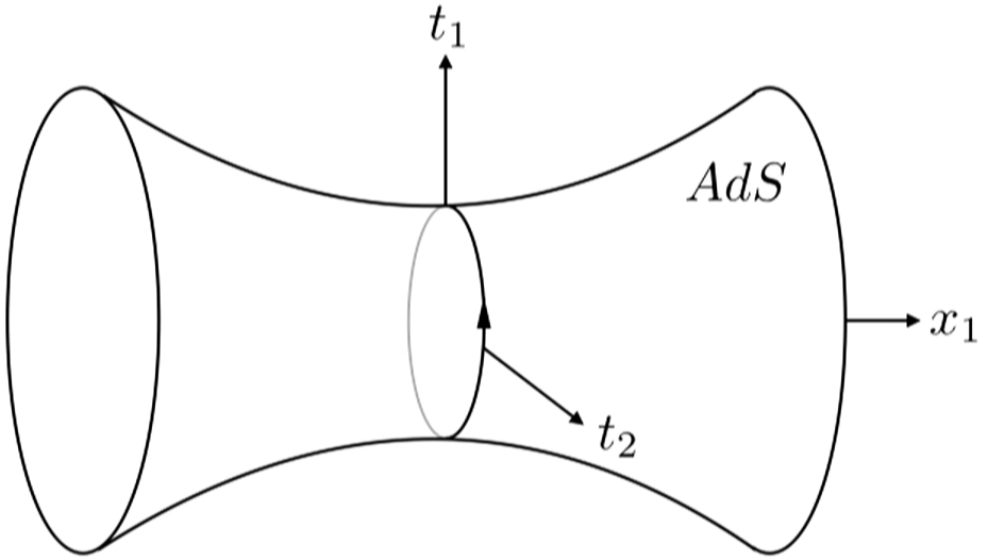

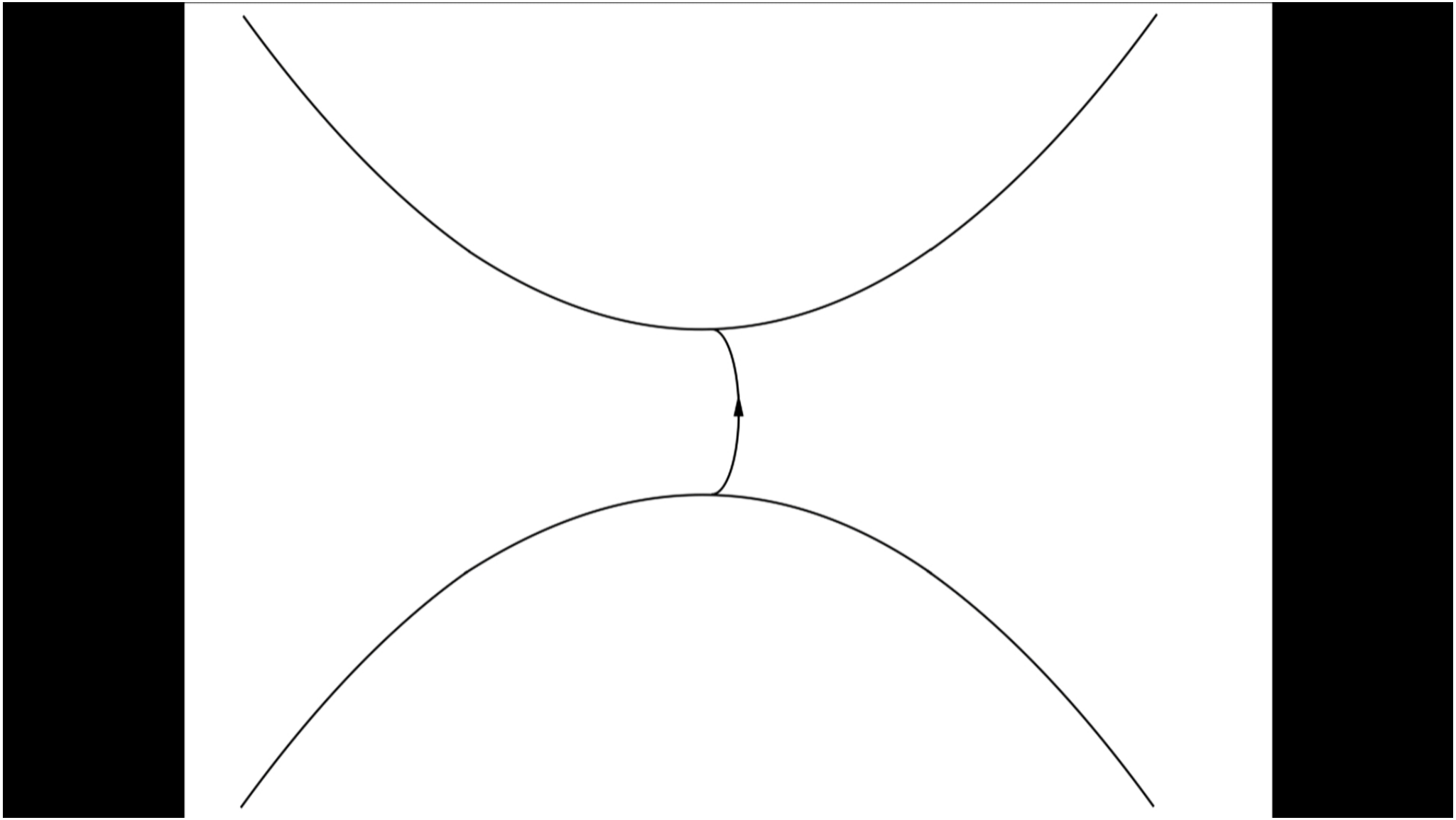

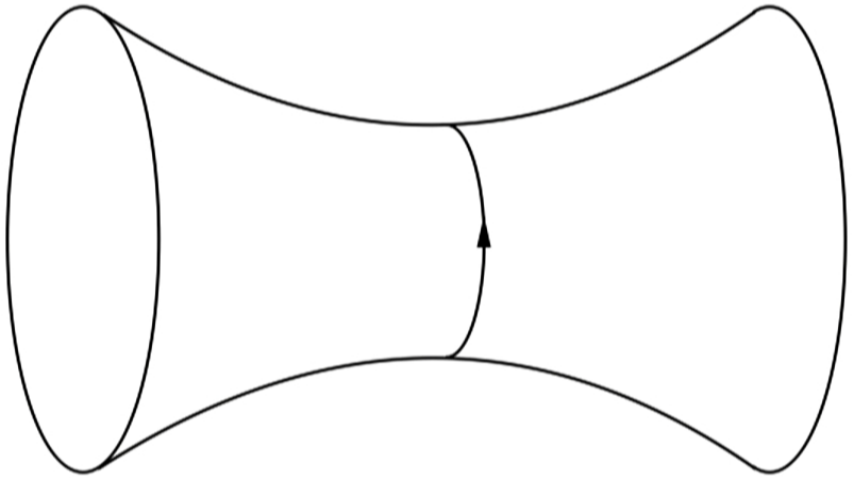

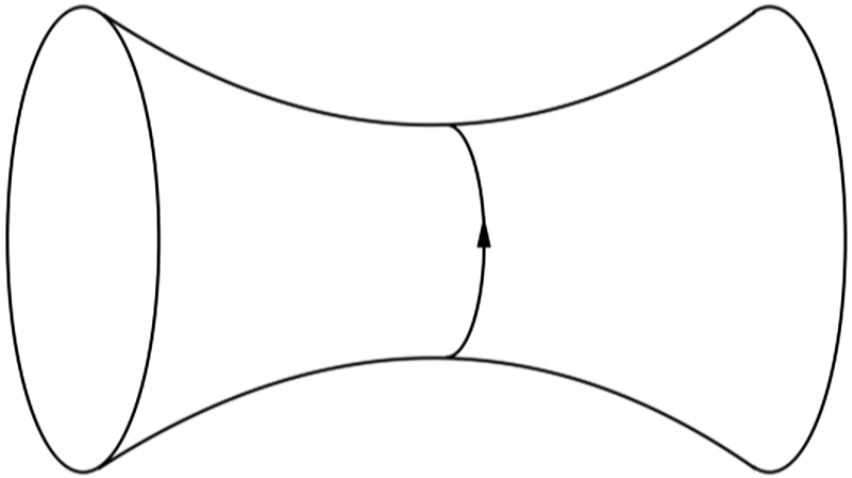

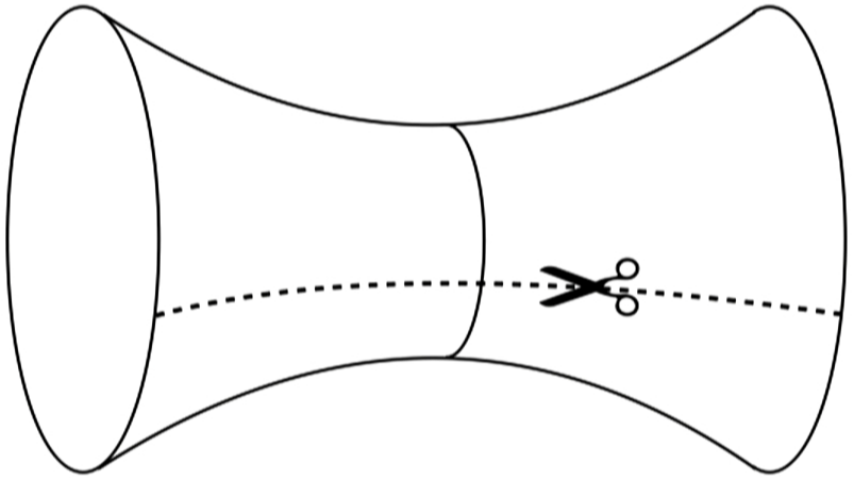

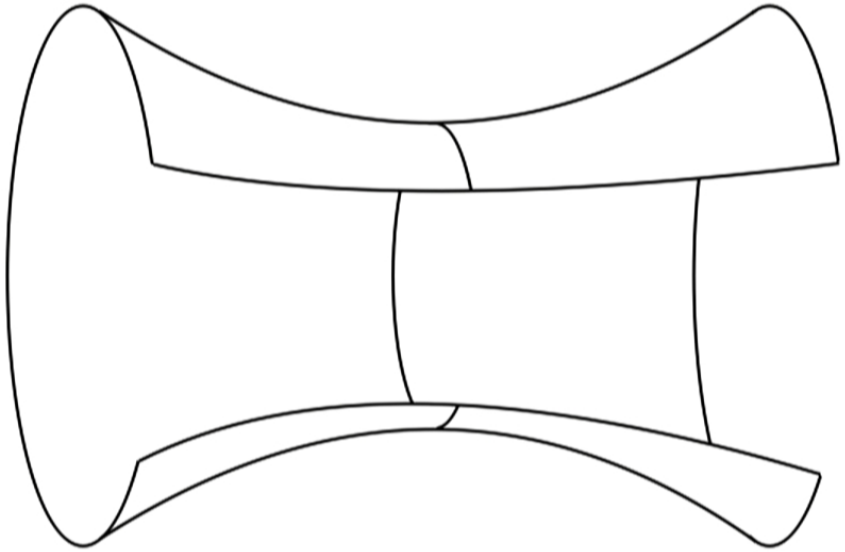

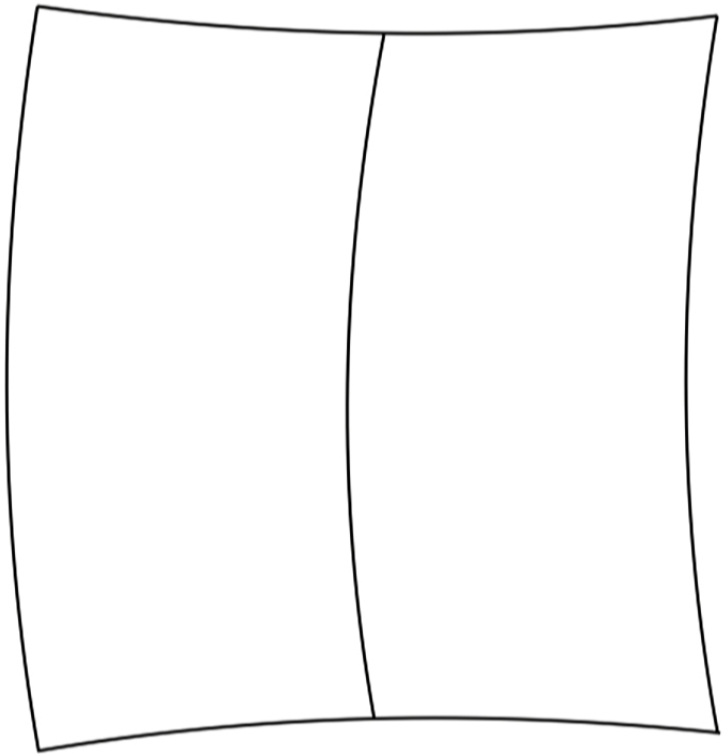

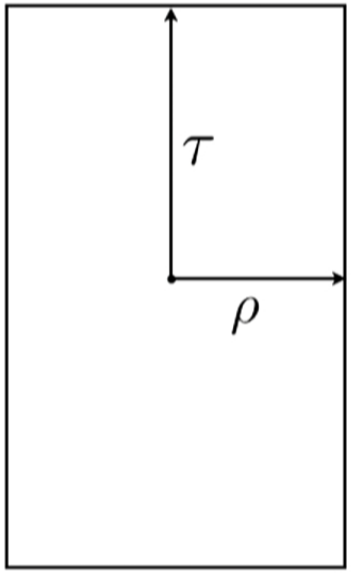
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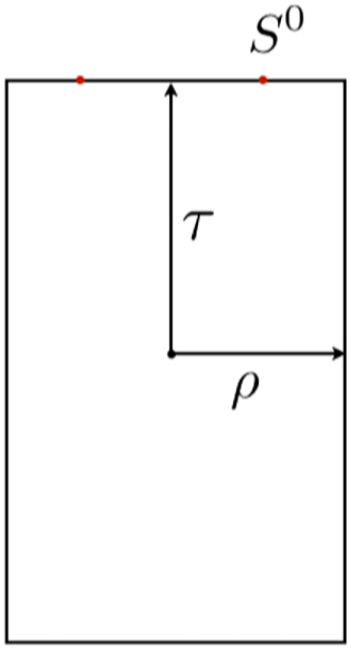
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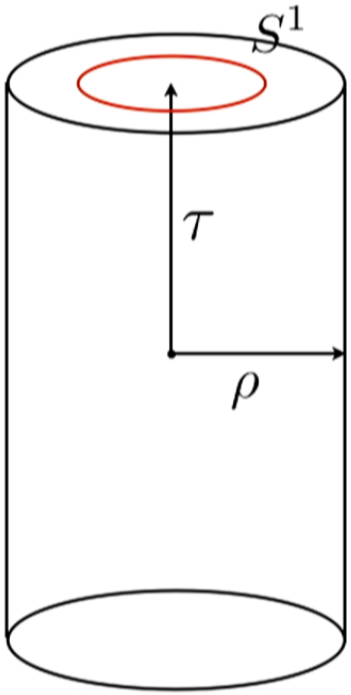
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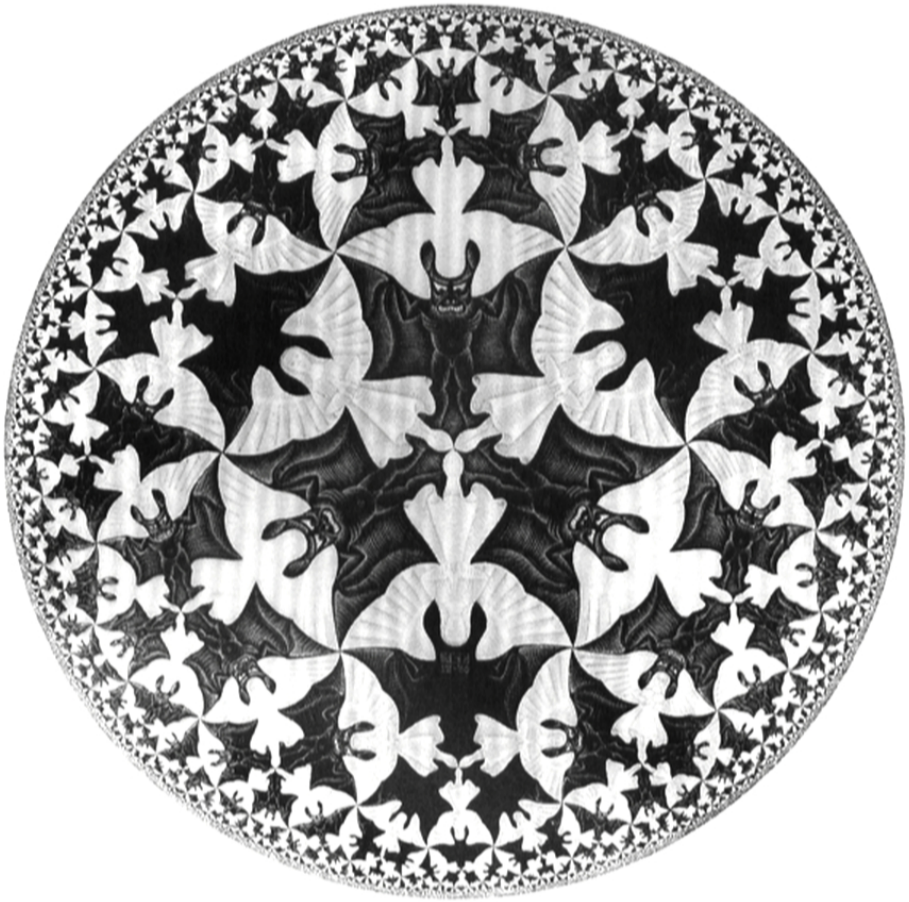
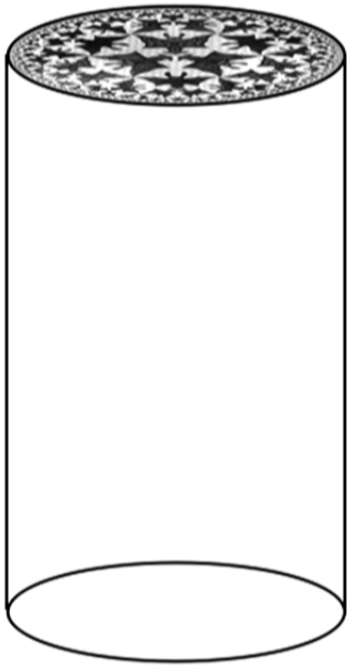
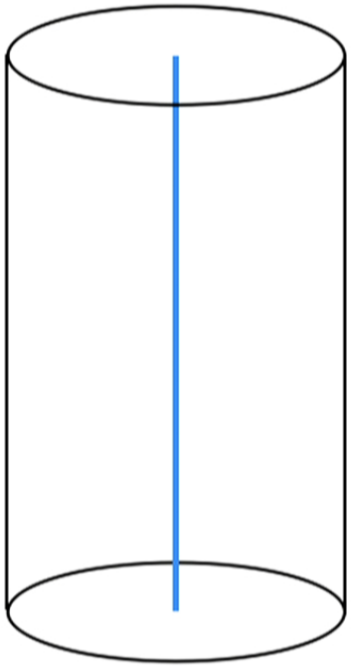
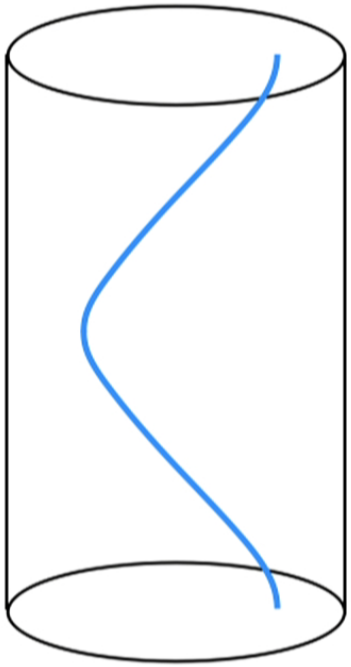
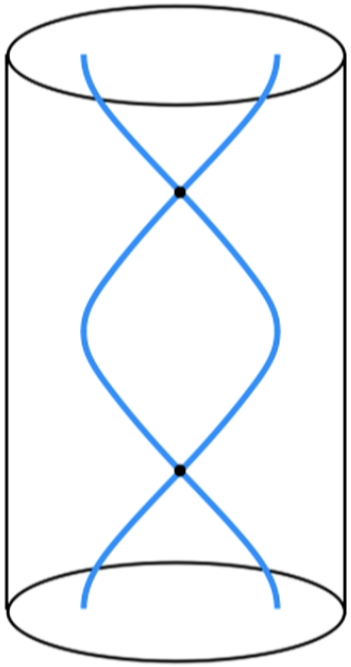
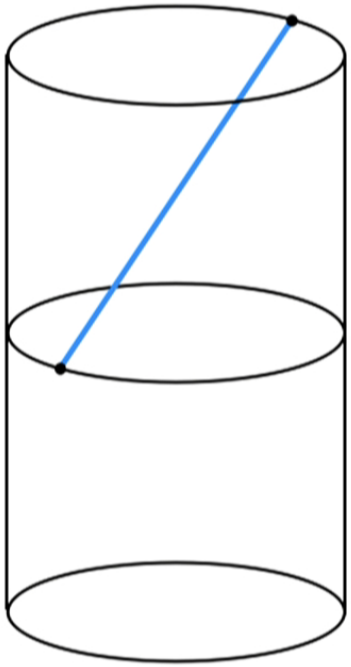


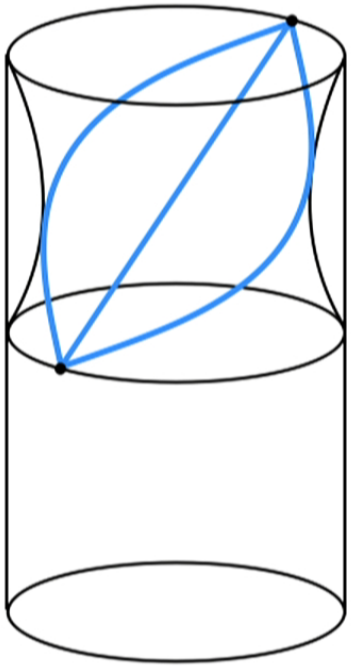




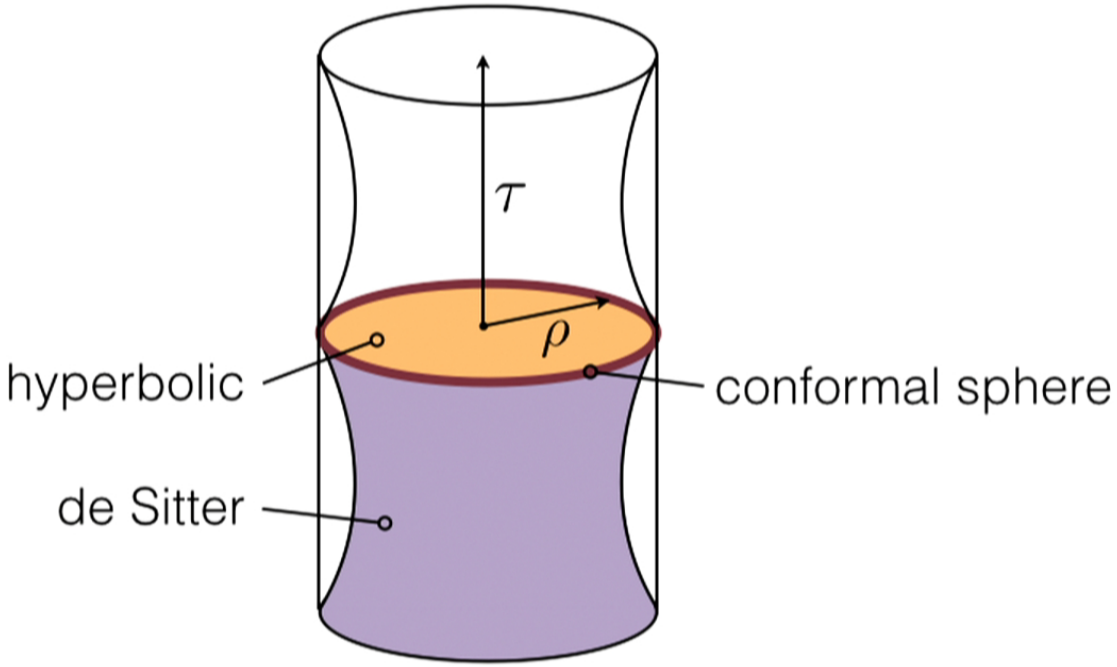


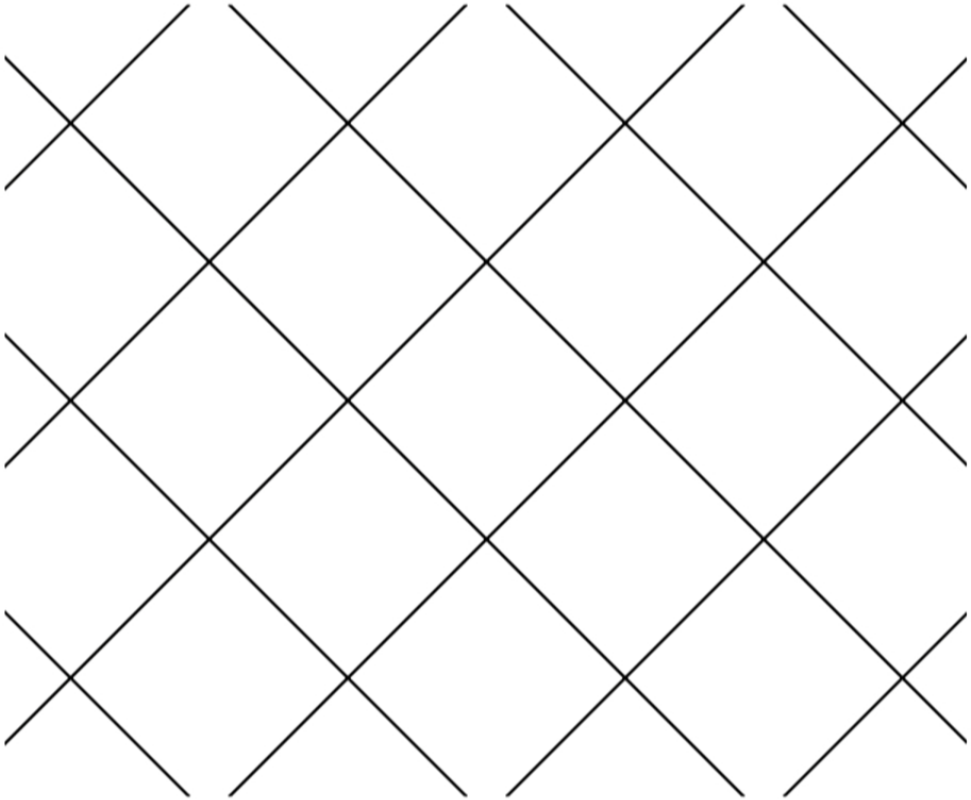


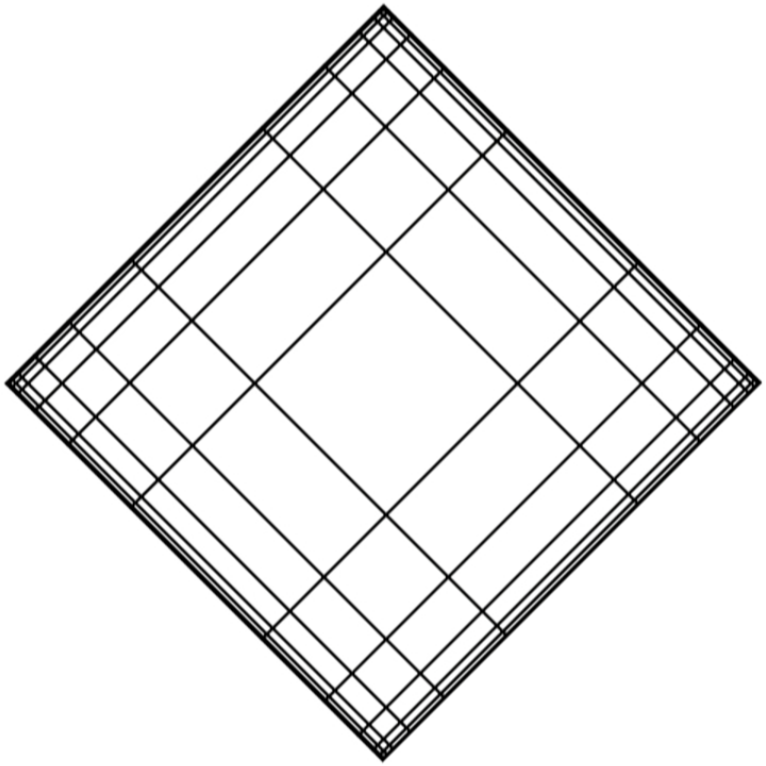


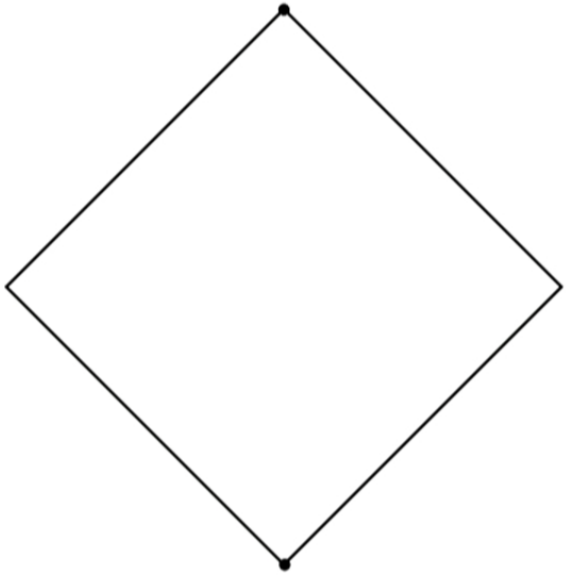


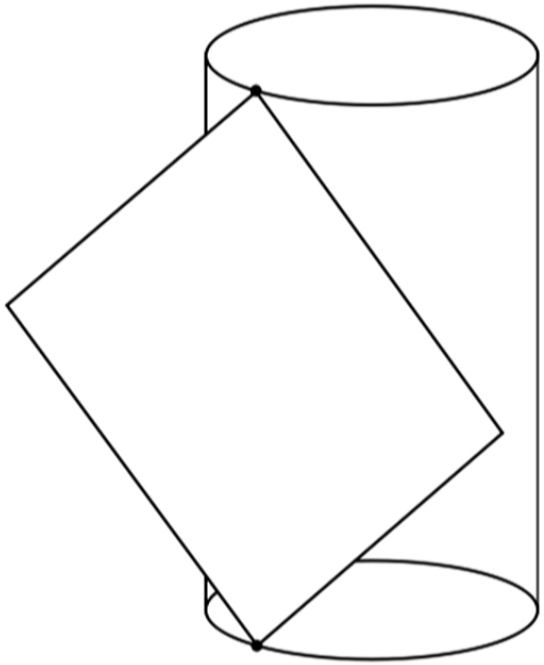
$$SO(1,d) \subseteq SO(2,d)$$

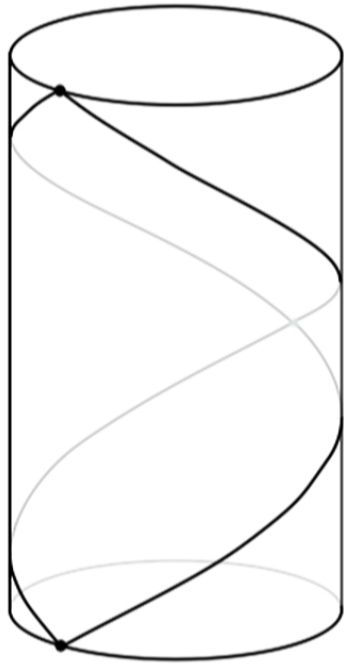


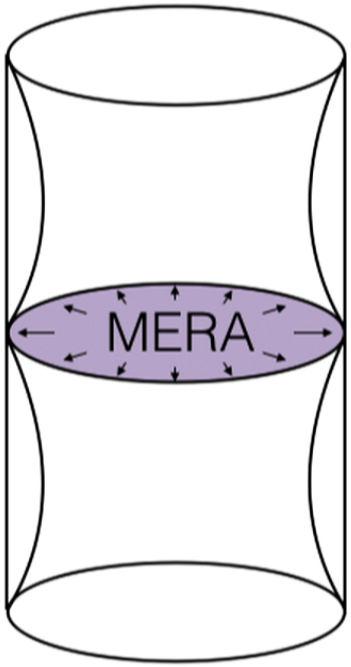


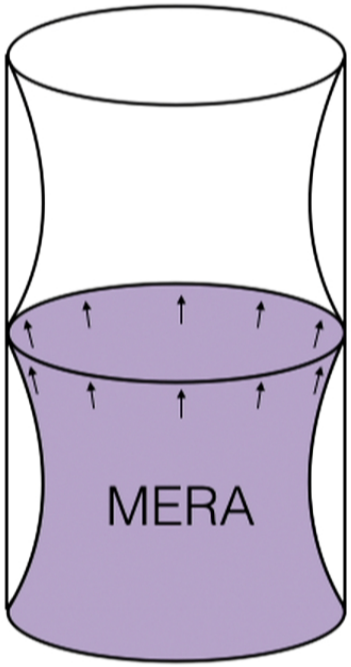


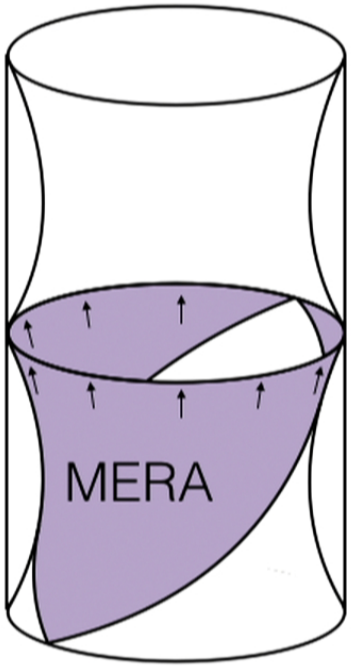







MERA


MERA


MERA

QFT on AdS
to
CFT on boundary

A. Schwarz arXiv:1509.08064

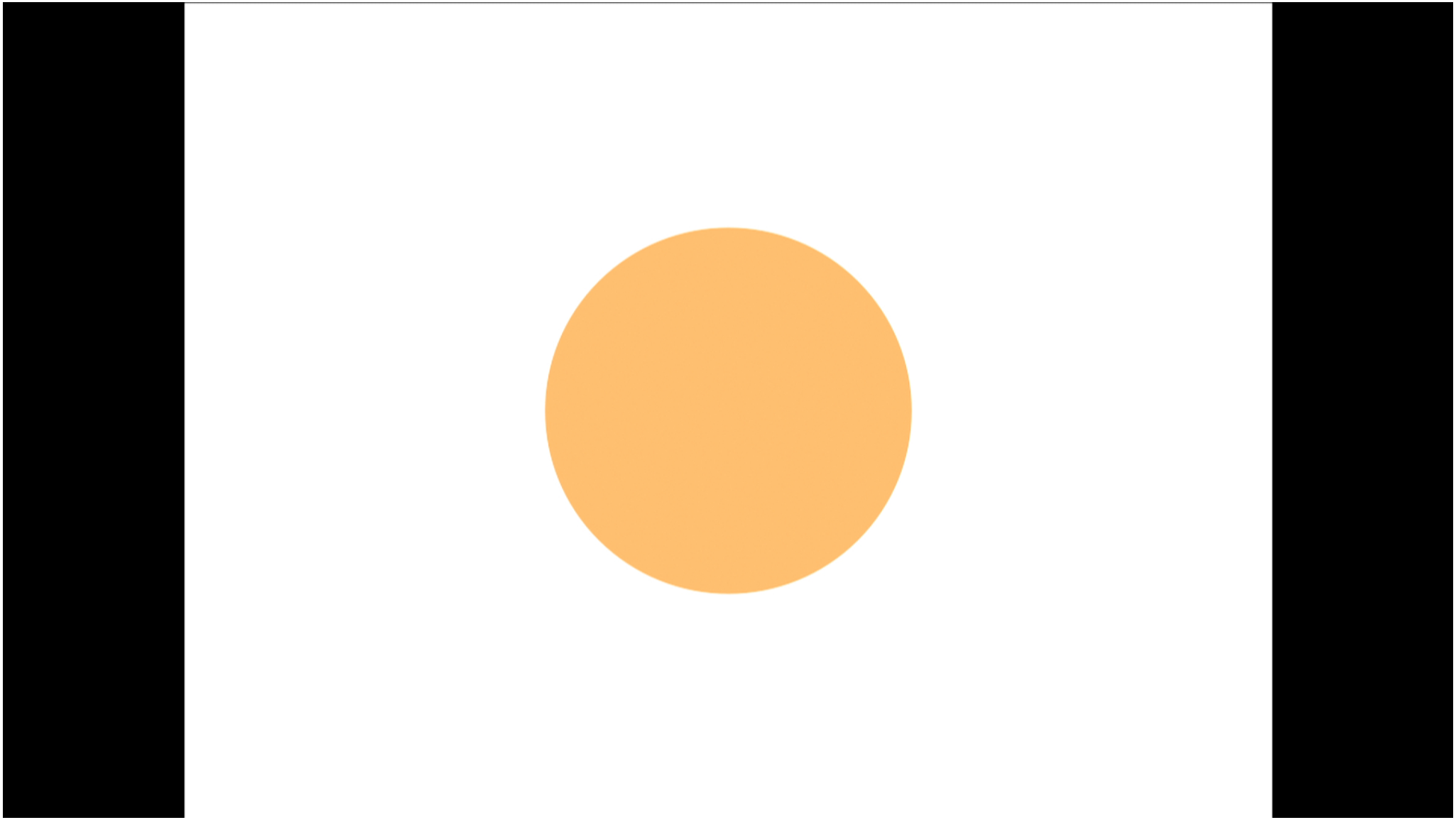
$$t \to i\beta$$

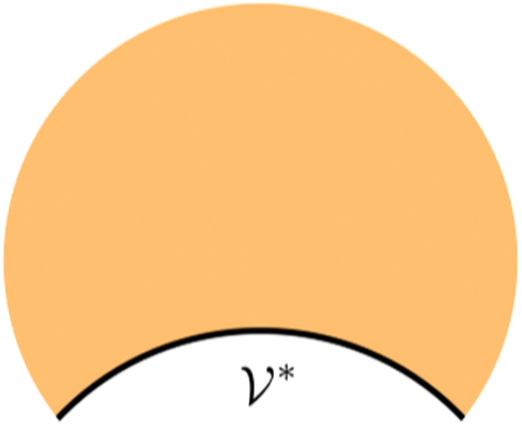
AdS

$$ds^2 = \frac{1}{z^2}(-dt^2 + dz^2 + \sum_i dx_i^2)$$

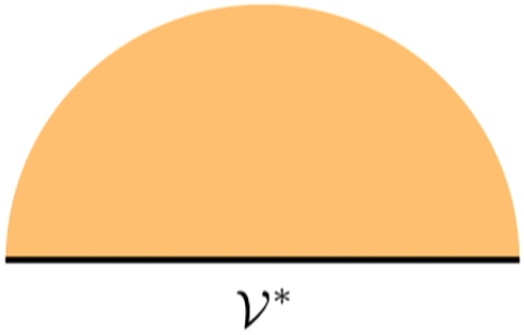
Hyperbolic

$$ds^2 = \frac{1}{z^2}(d\beta^2 + dz^2 + \sum_i dx_i^2)$$

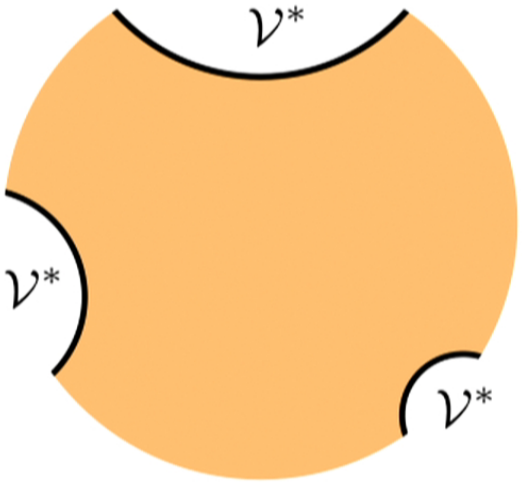



$\mathcal{V}^*$

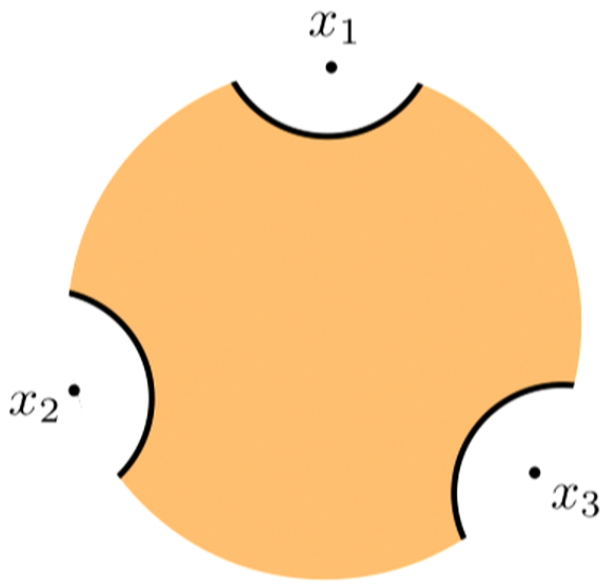
ν^*


$\mathcal{V}^*$

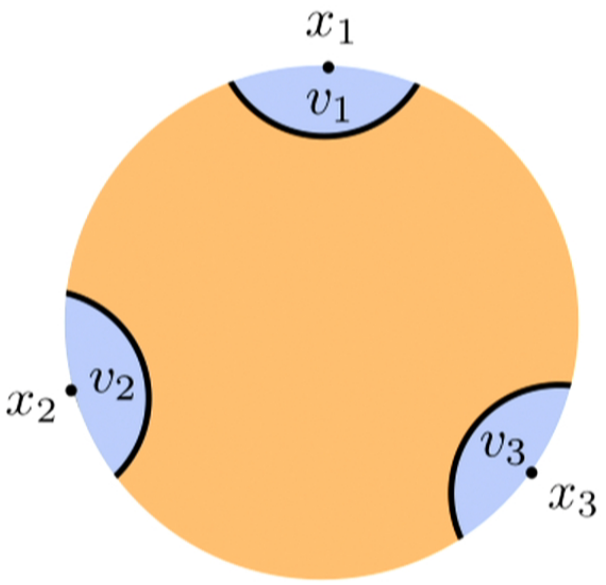
V^*



$$\in \mathcal{V}^* \otimes \mathcal{V}^* \otimes \mathcal{V}^*$$

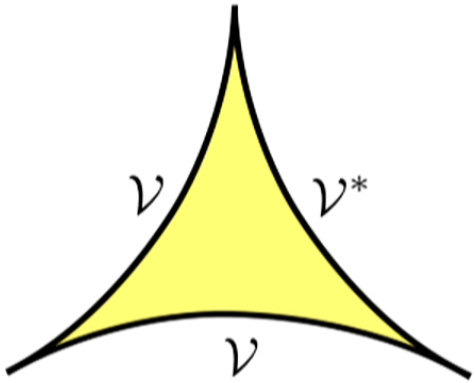

x_1
x_2
x_3

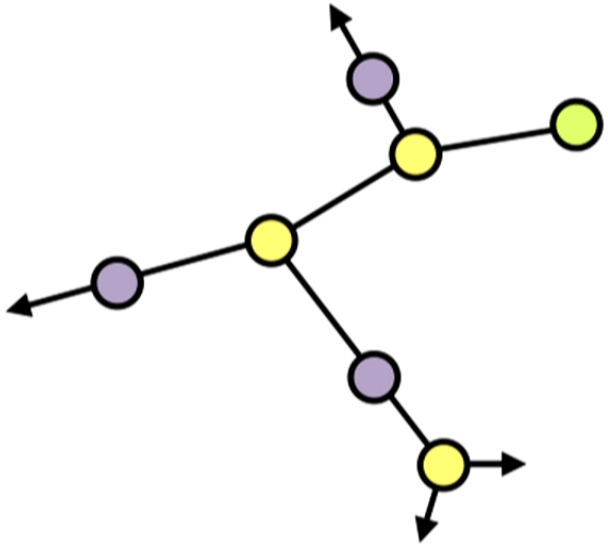
$$f_i = (v_i, x_i)$$

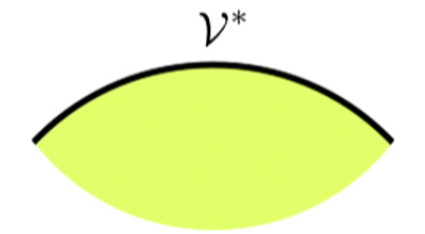


$\in \mathbb{C}$

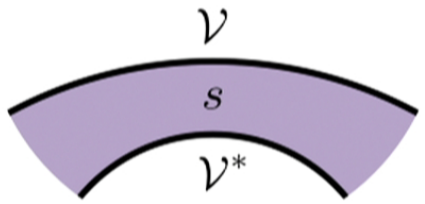
$$= \langle 0|\hat{\phi}(f_1)\hat{\phi}(f_2)\hat{\phi}(f_3)|0\rangle$$


ν
ν^*
ν

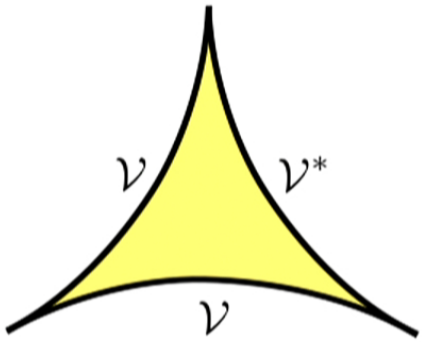




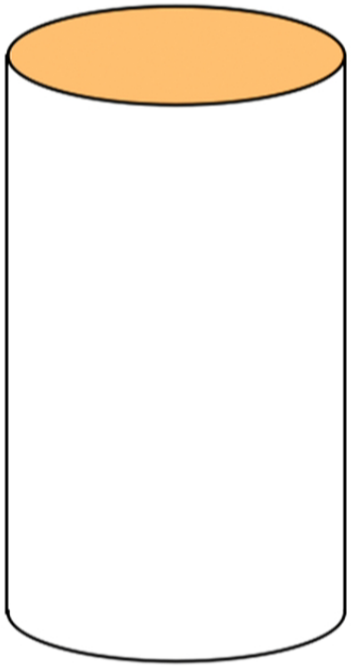
vacuum

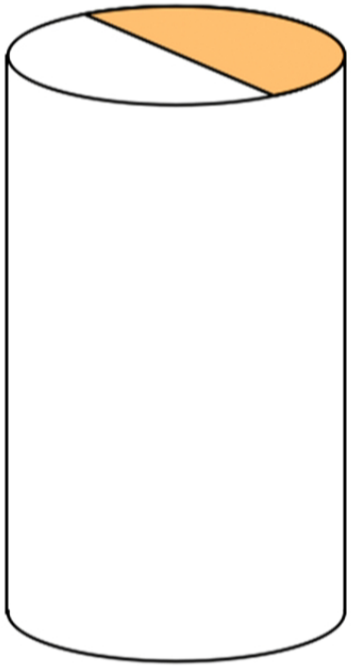


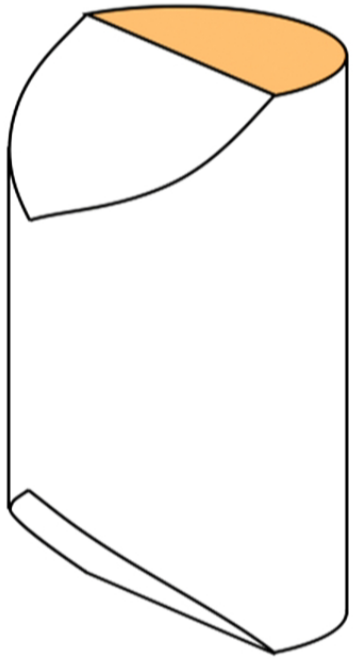
scaling operator

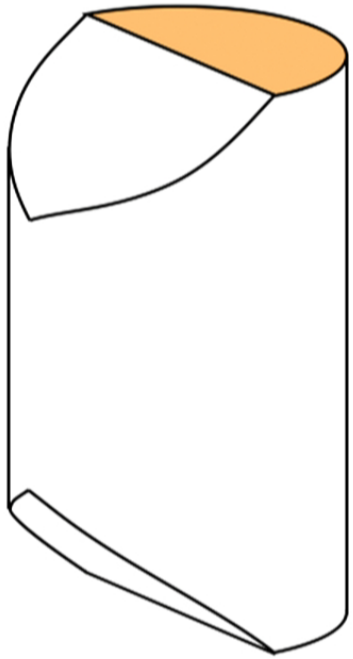


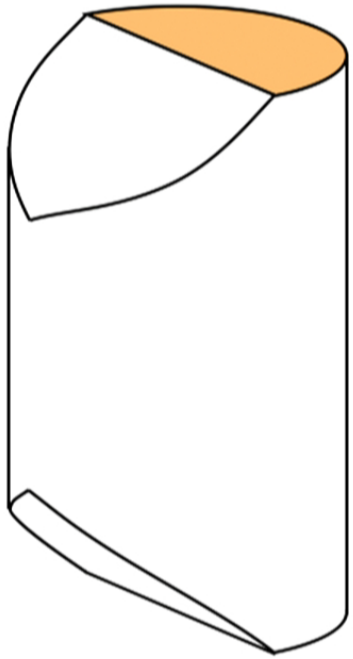
operator product expansion

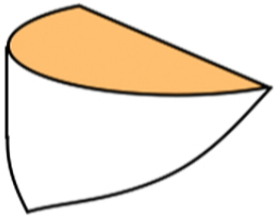


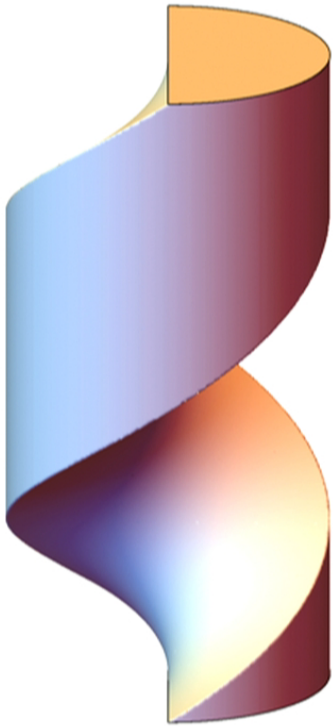


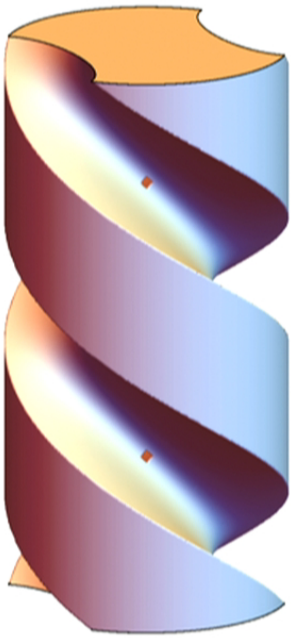


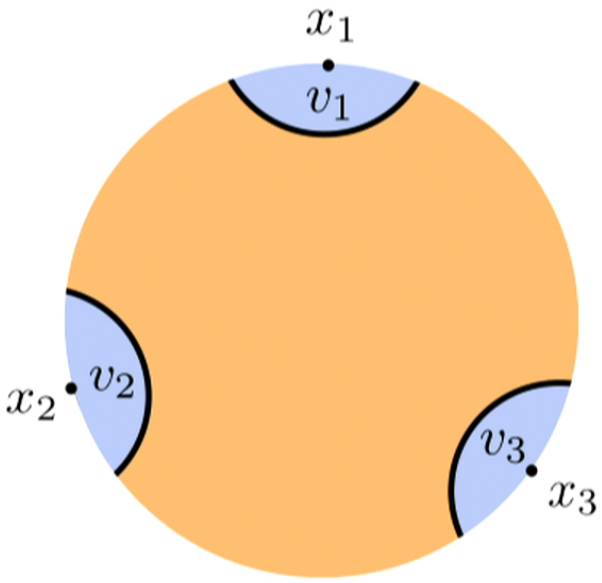




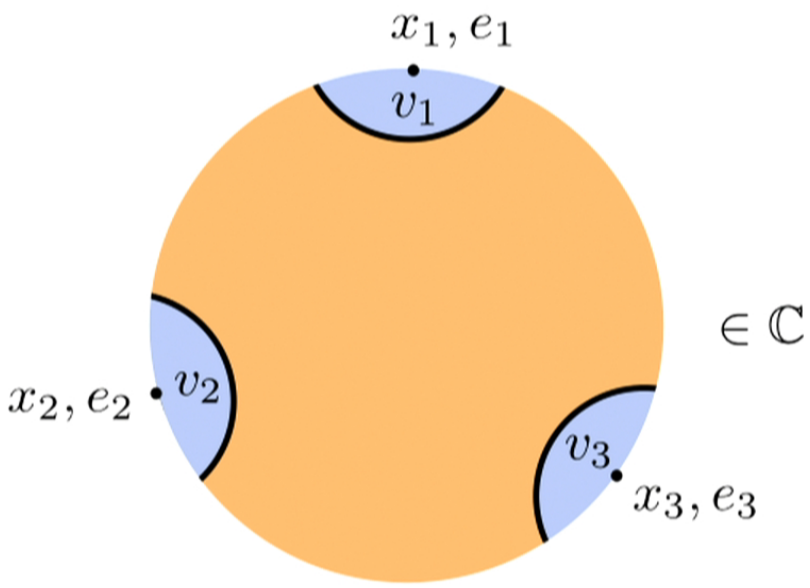




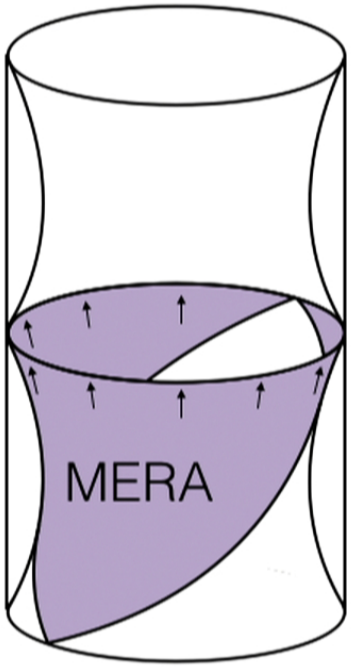


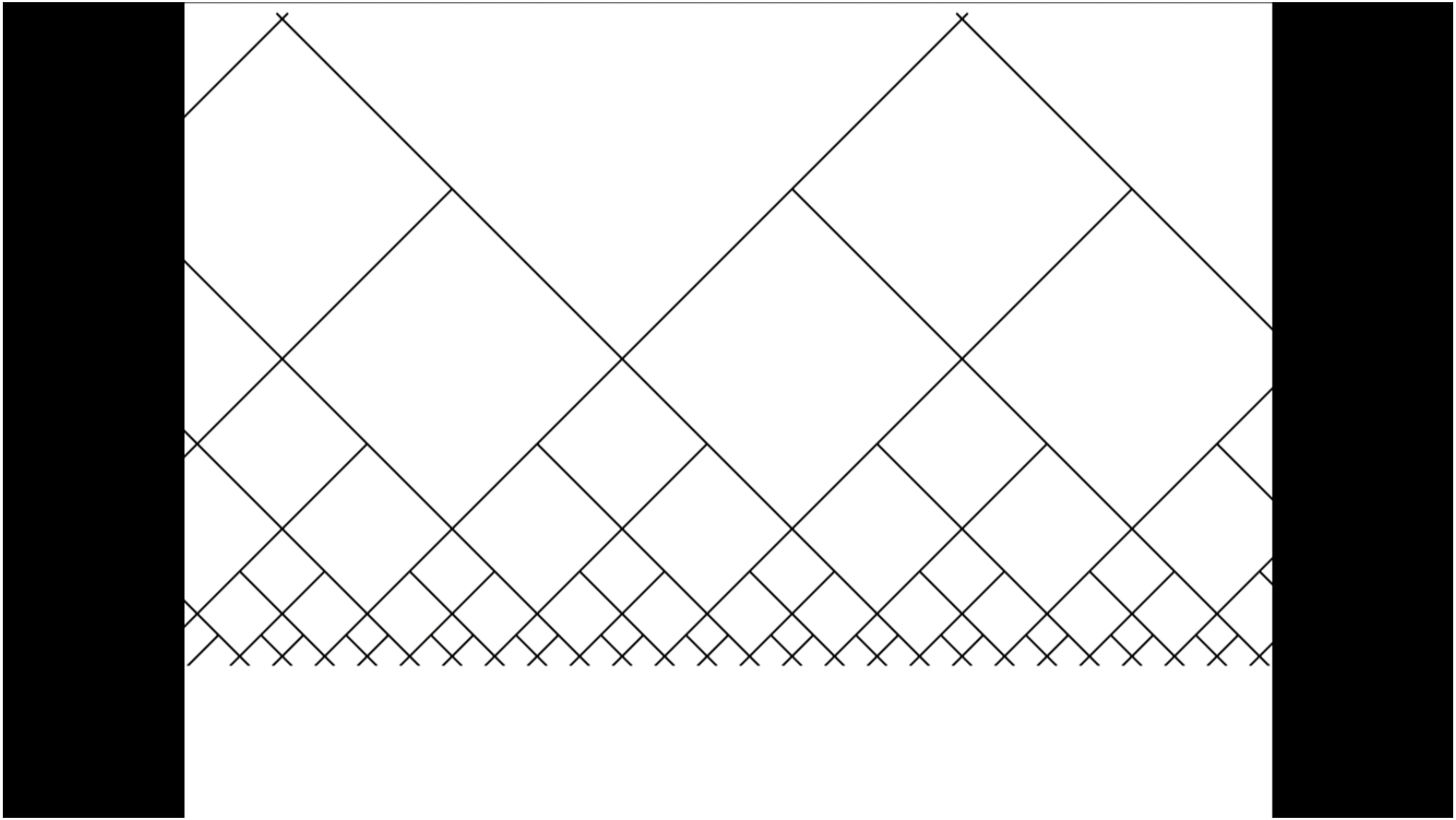

x_1
v_1
x_2
v_2
v_3
x_3

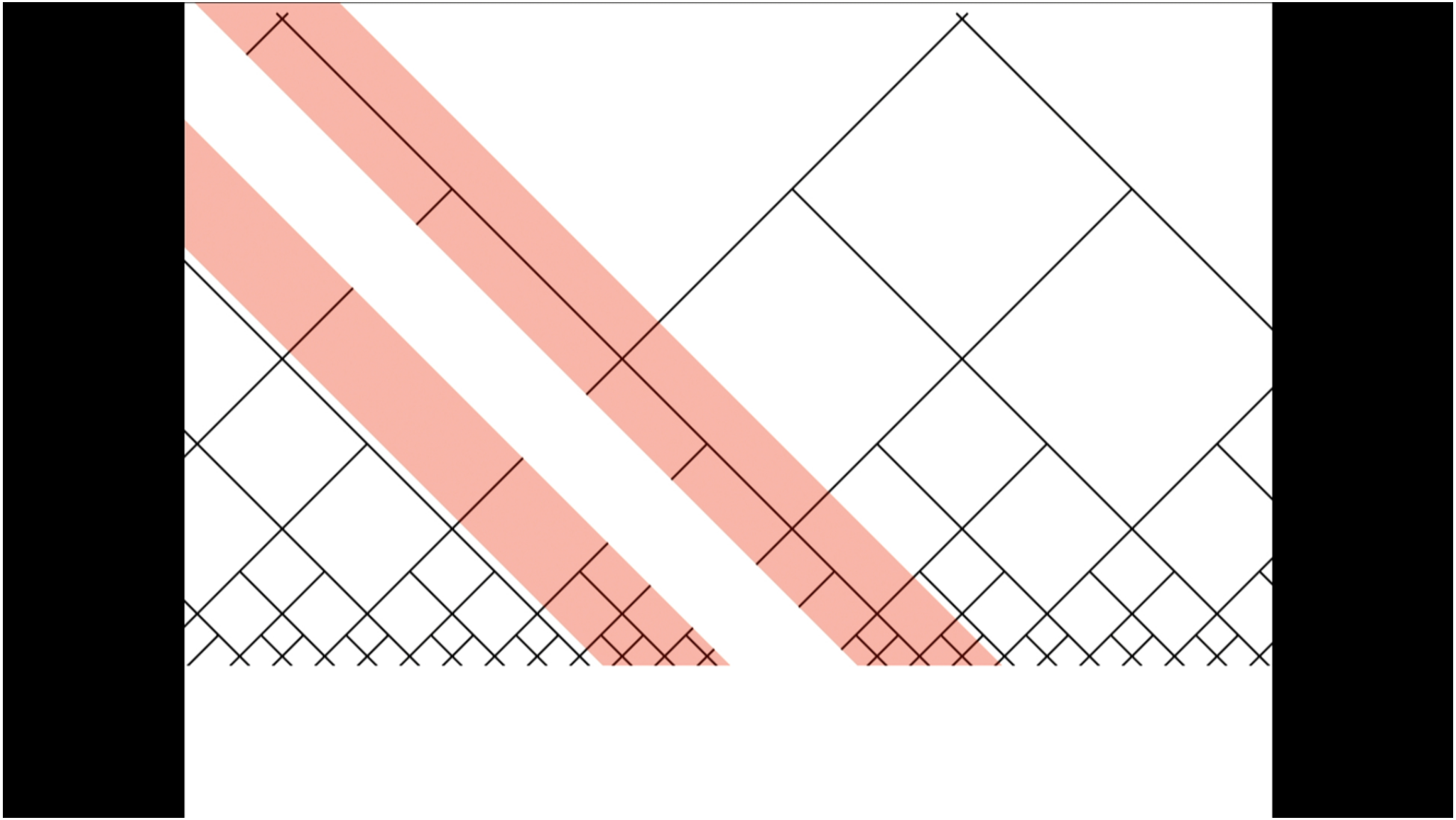
$$f_i = (v_i, x_i, e_i)$$



$$= \langle 0 | \hat{\phi}(f_1) \hat{\phi}(f_2) \hat{\phi}(f_3) | 0 \rangle$$


MERA





BTZ black hole

Thank you