

# Defects and Holography

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# Our goal

- **Holographic diagnostic of the black hole creation**
- **Explicit model for thermalization**  
(non-equilibrium correlators that in the  
some limit approach to thermal correlators)

This is related with the problem of quark-gluon  
plasma formation. [I.A.Phys.Usp., 2014](#)

# References

- This is a long term project.
- I.A., A. Bagrov, “Holographic dual of a conical defect”, Theor. Math. Phys., 182 (2015), 1–22
- Work in progress

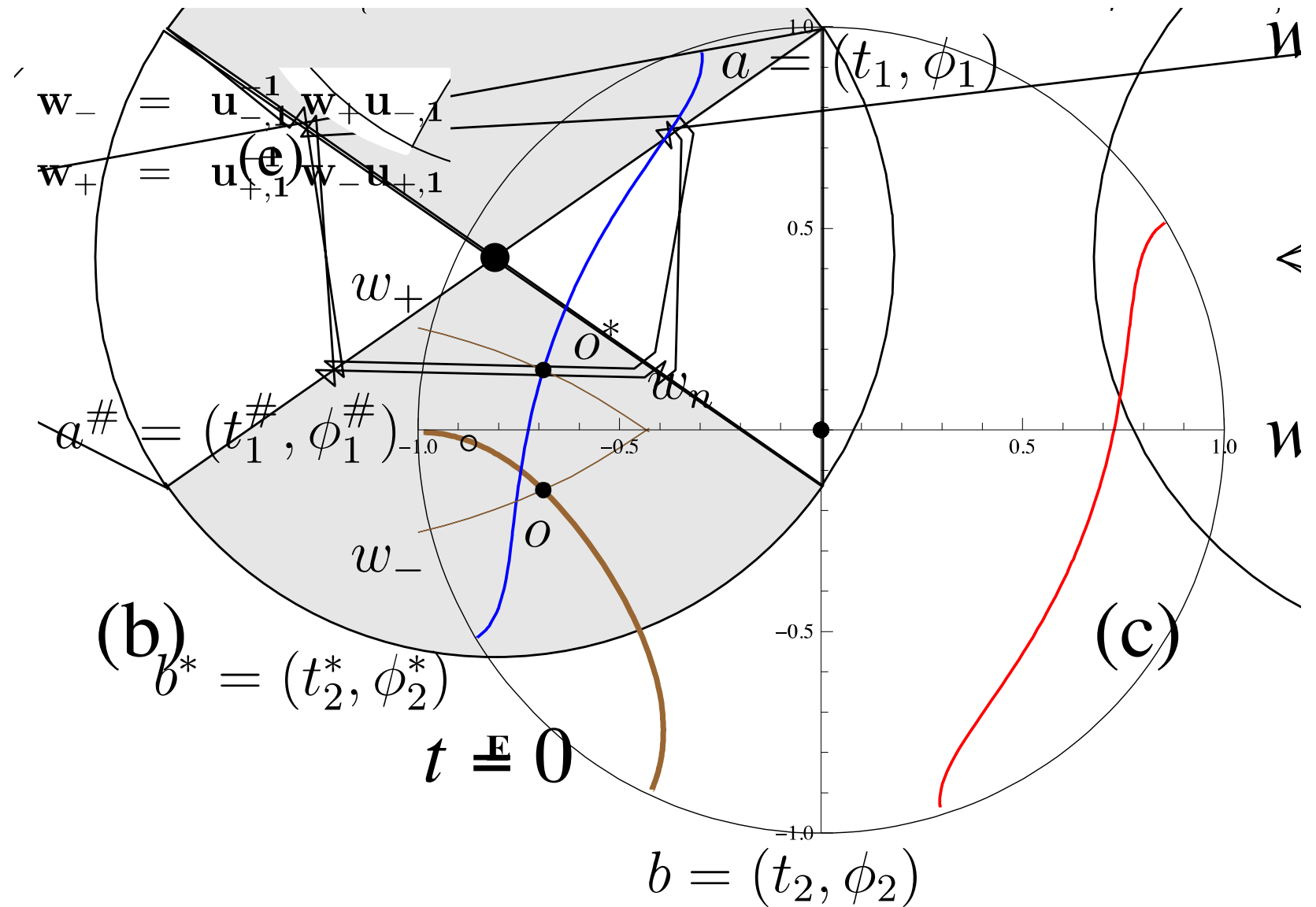
# In 3-dim

- An "explicit" model of BH creation in AdS3



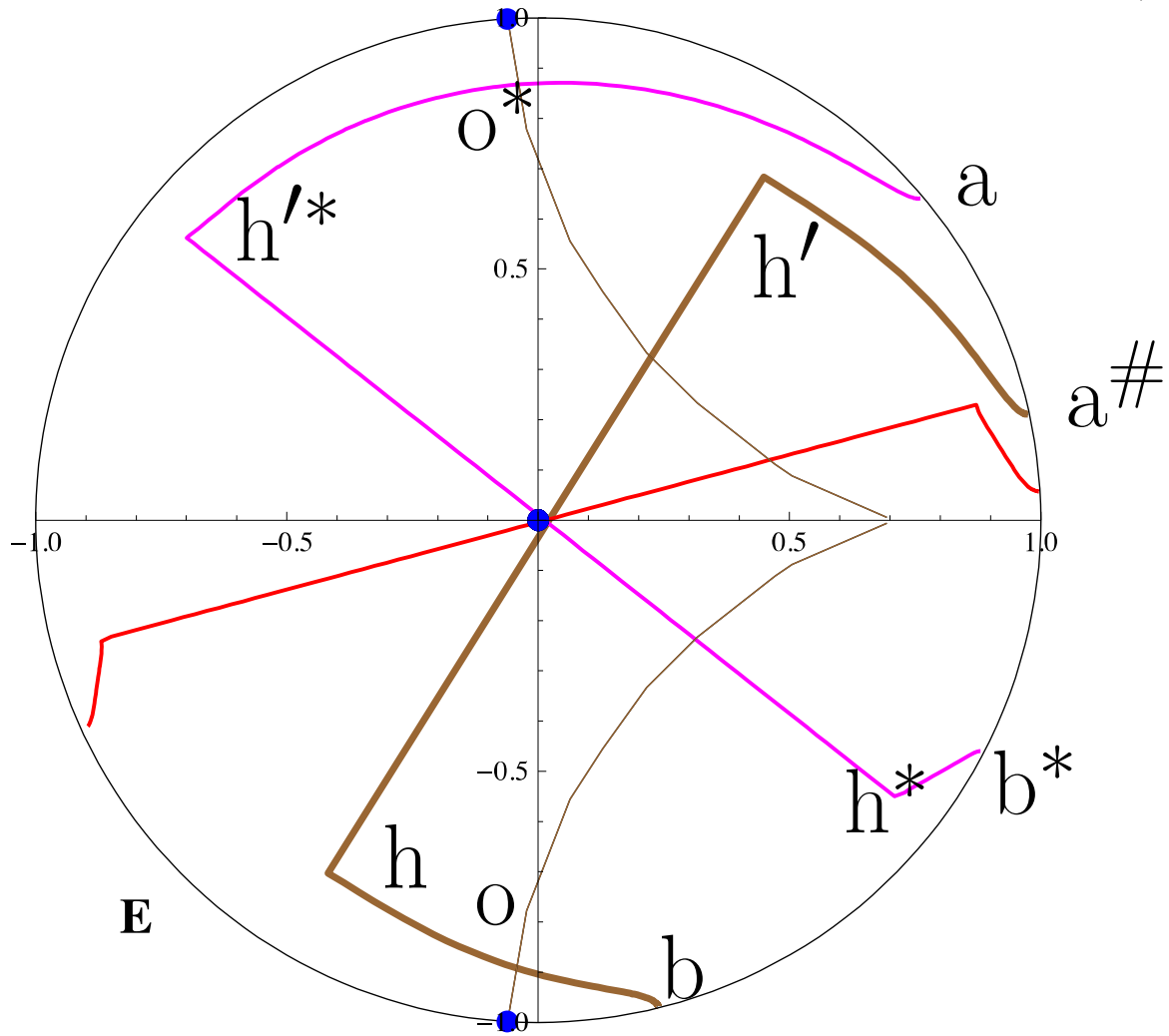
# Two main points

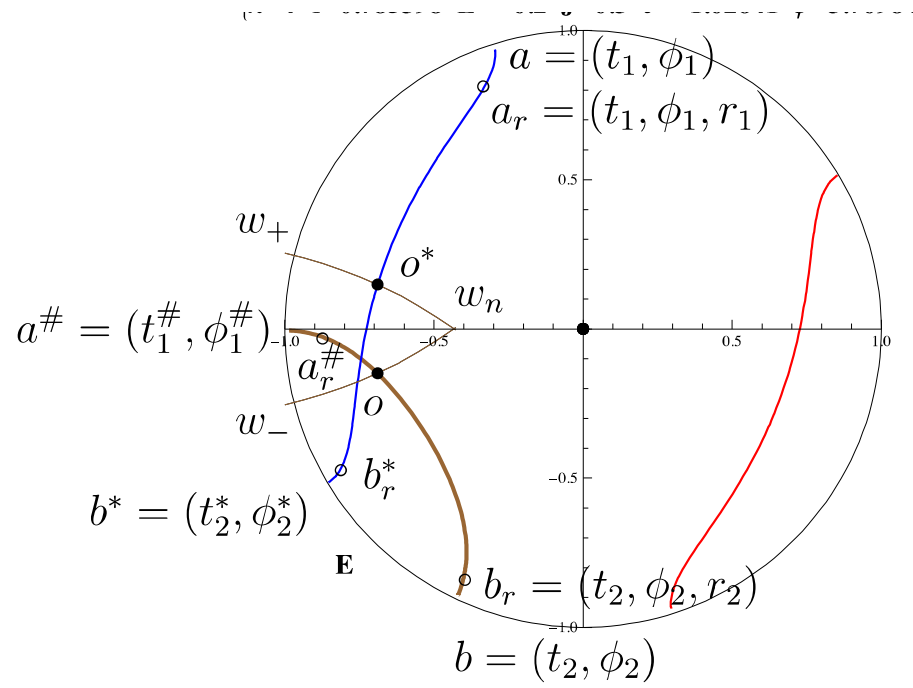
- Thermal Green functions in the holographic approach correspond to bulk with a black hole (or black brane)
- Thermalization holographically means a black hole creation

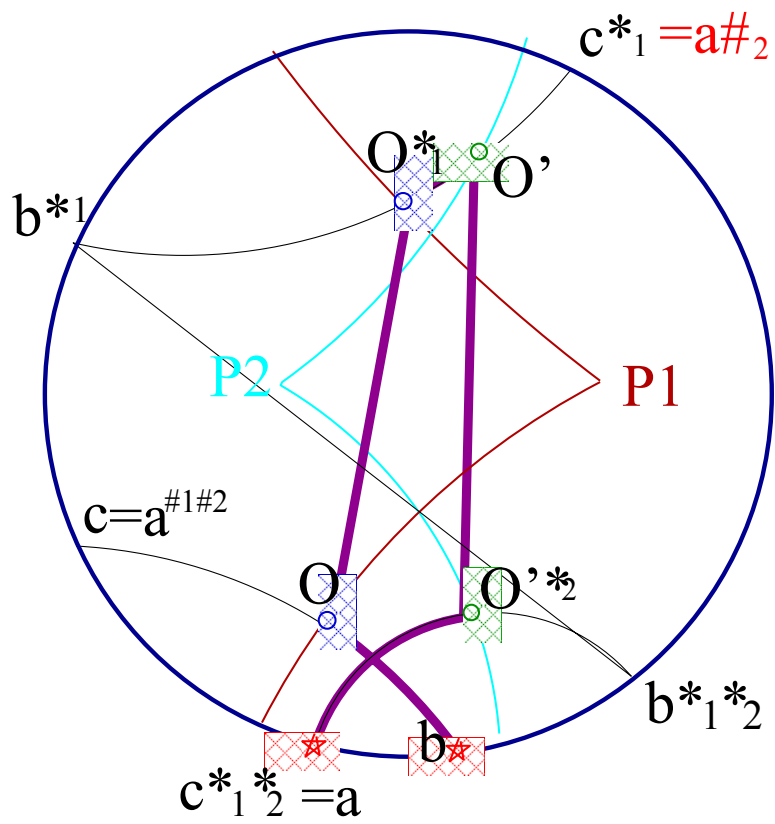


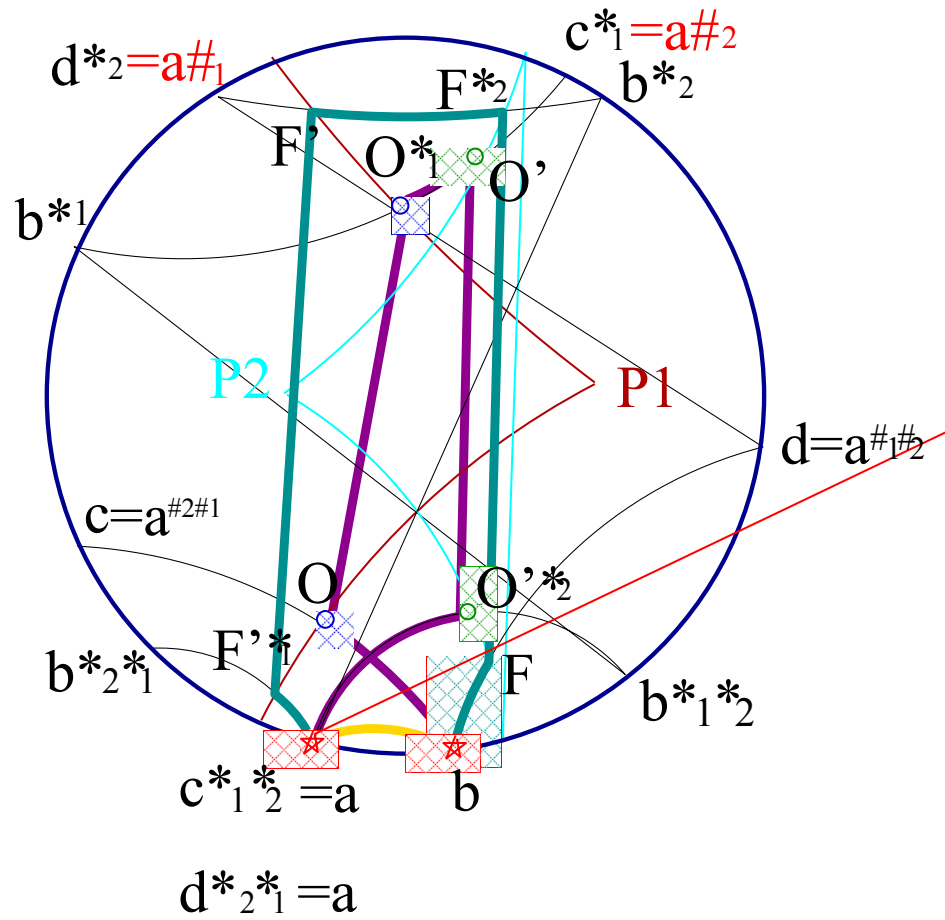
$$\mathbf{g}_{ob} = \mathbf{u}_{-,1}^{-1} \mathbf{g}_{o^*b^*} \mathbf{u}_{-,1}$$

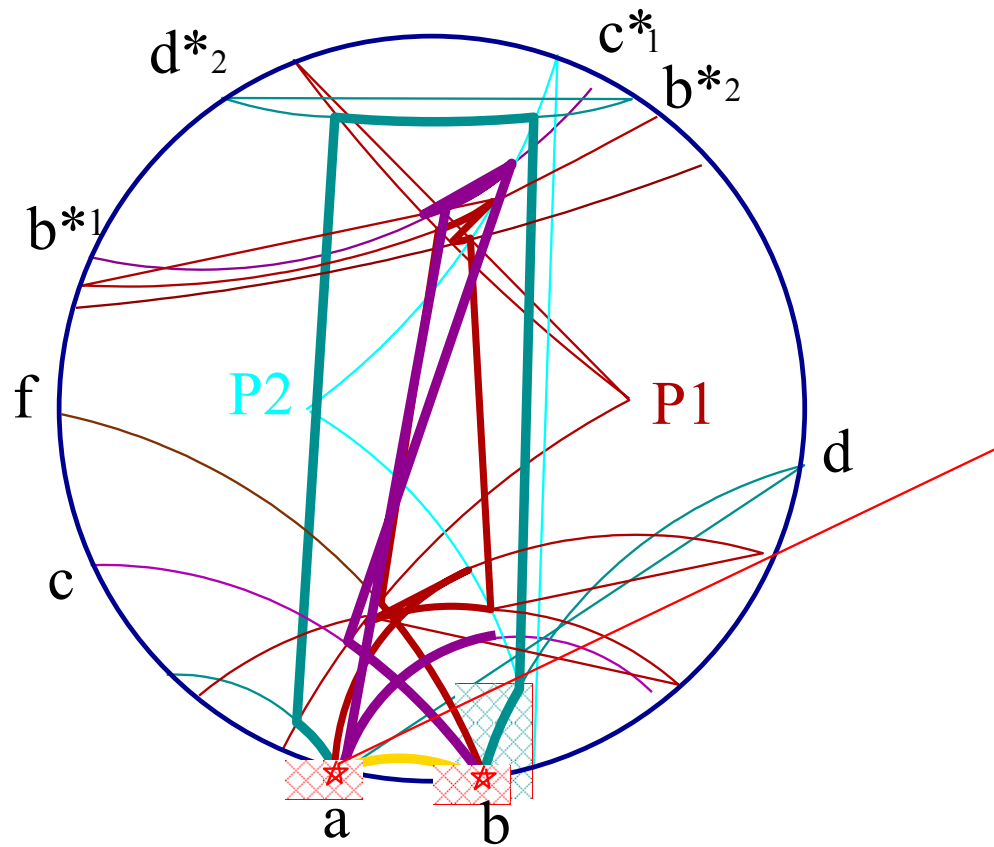
$$\mathbf{g}_{oa^\#} = \mathbf{u}_{+,1} \mathbf{g}_{o^*a} \mathbf{u}_{+,1}^{-1}$$





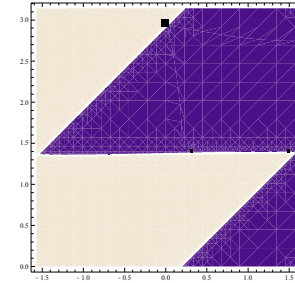
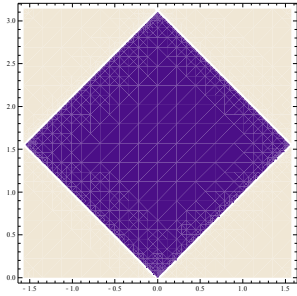




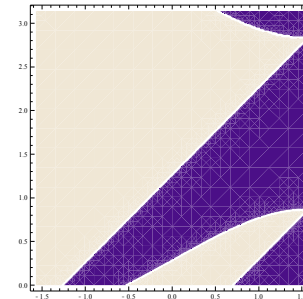
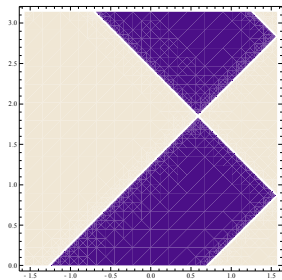


$$\text{Signum}[\cos(\varphi_{a\#}) - \cos(t_{a\#})], \quad \text{pencil} = 0, \quad \cos(\varphi_{a\#} - \varphi_b) - \cos(t_{a\#} - t_b)$$

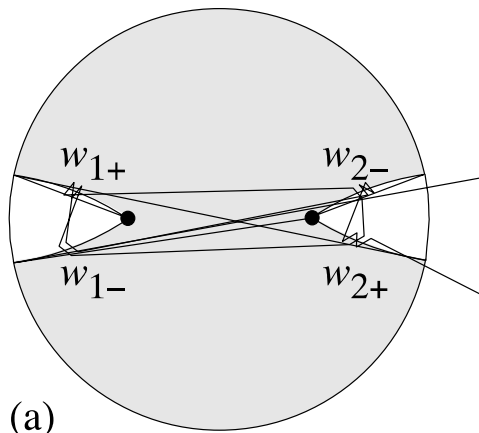
$$\varphi_b = \uparrow / 2, \quad t_b = \uparrow / 2$$



$$\text{pencil} = \uparrow / 6$$

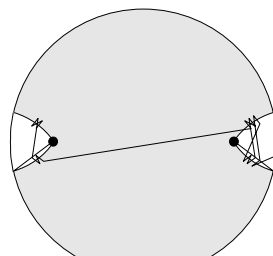






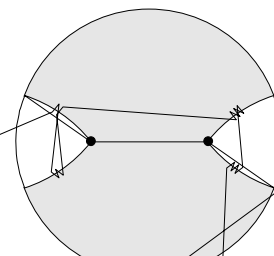
(a)

$$-\pi/2 < t < 0$$



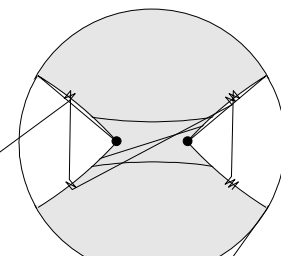
(a)

$$-\pi/2 < t < \tau - \pi/2$$



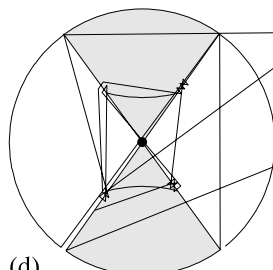
(b)

$$t = \tau - \pi/2$$



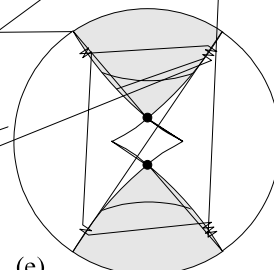
(c)

$$\tau - \pi/2 < t < 0$$



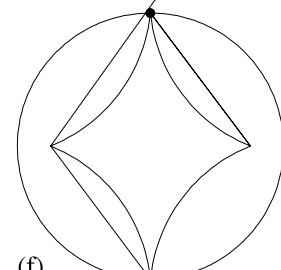
(d)

$$t = 0$$



(e)

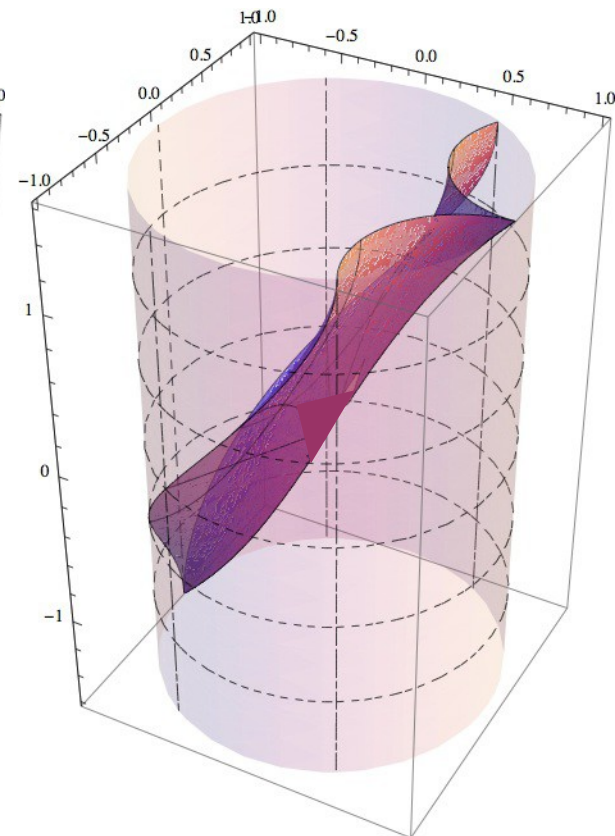
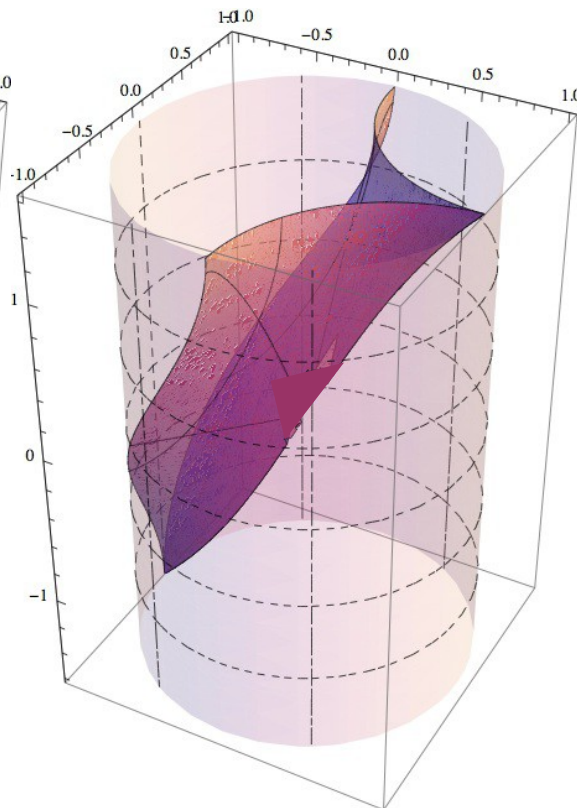
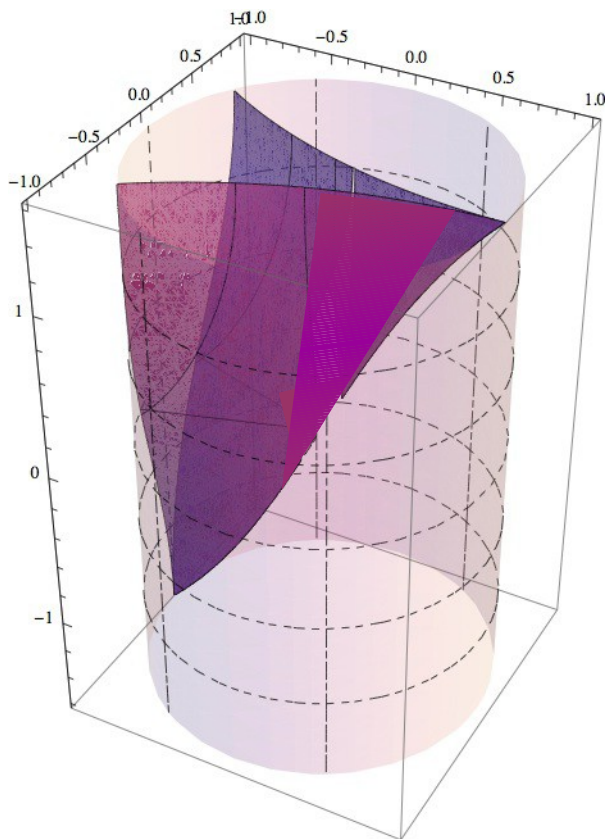
$$0 < t < \tau$$



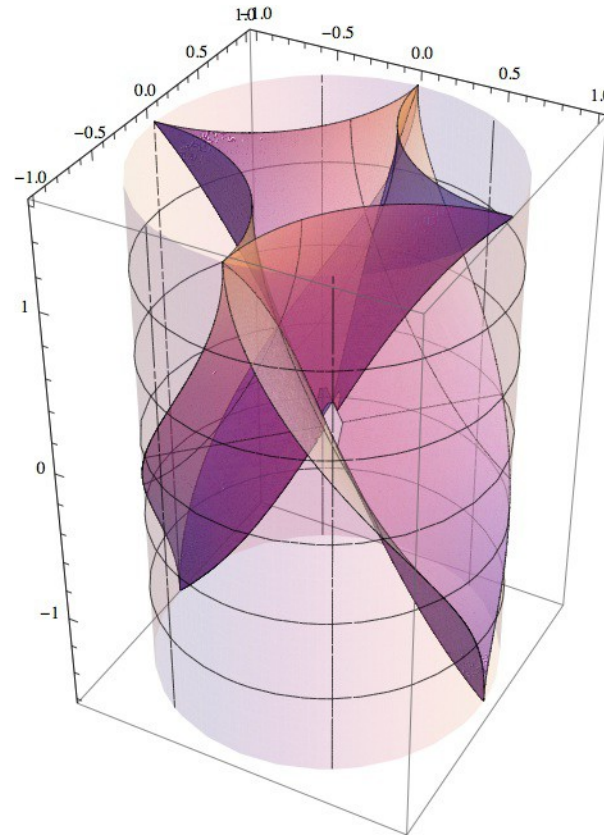
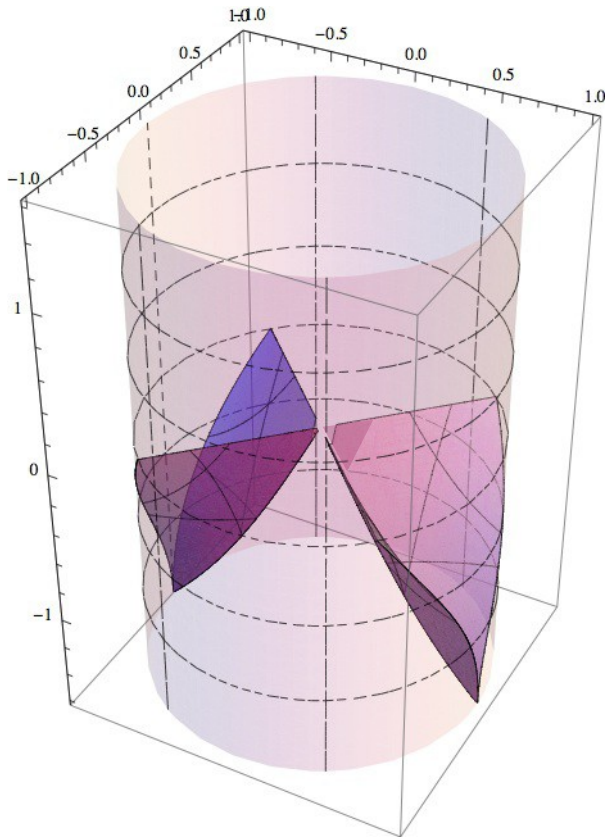
(f)

$$t = \tau$$

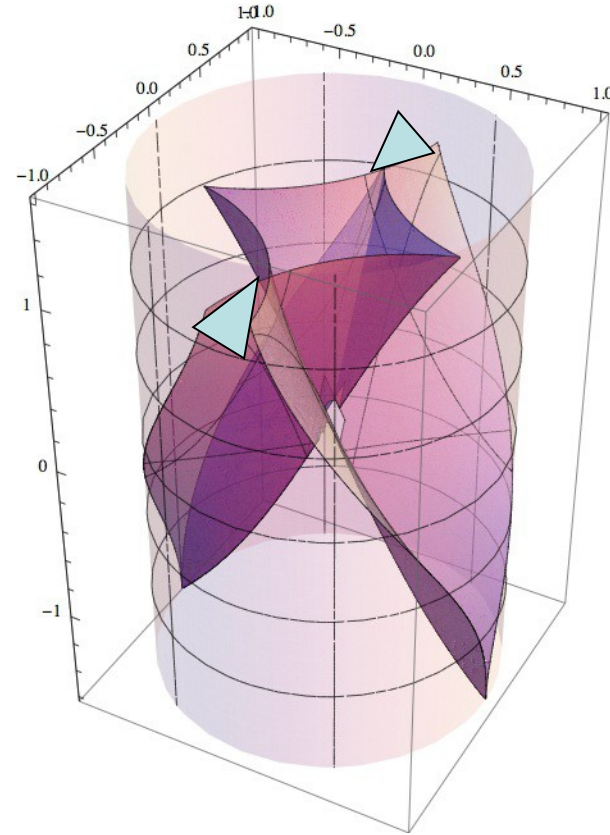
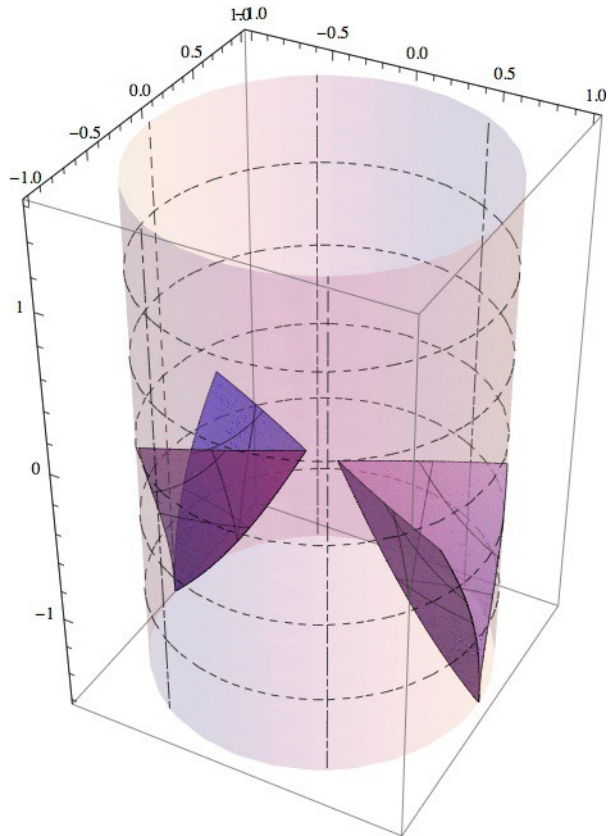
# One wedge



# Two wedges, epsilon = pi/4



# Two wedges, $\epsilon < \pi/4$



# Two small angles

