AP-GR-114, OCU-PHYS-409, OU-HET-821, RIKEN-M

Turbulent meson condensation in quark deconfinement

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In a QCD-like strongly coupled gauge theory at large N_c, using the AdS/CFT correspondence, we find that heavy quark deconfinement is accompanied by a coherent condensation of higher meson resonances. This is revealed in non-equilibrium deconfinement transitions triggered by static, as well as, quenched electric fields even below the Schwinger limit. There, we observe a "turbulent" energy flow to higher meson modes, which finally results in the quark deconfinement. Our observation is consistent with seeing deconfinement as a condensation of long QCD strings.

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We remind that the $\mathcal{N} = 2$ theory is a toy mo
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クォーク非閉込め ＝ 乱流的メソン凝縮

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木下俊一郎さん（大阪市大）

村田佳樹さん（慶應）

岡隆史さん（東大工）

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ArXiv:1408.6293

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背景1

メソンはQCD弦

背景2

弦凝縮で非閉込め

1

我々の予言

クォーク非閉込め ＝ 乱流的メソン凝縮

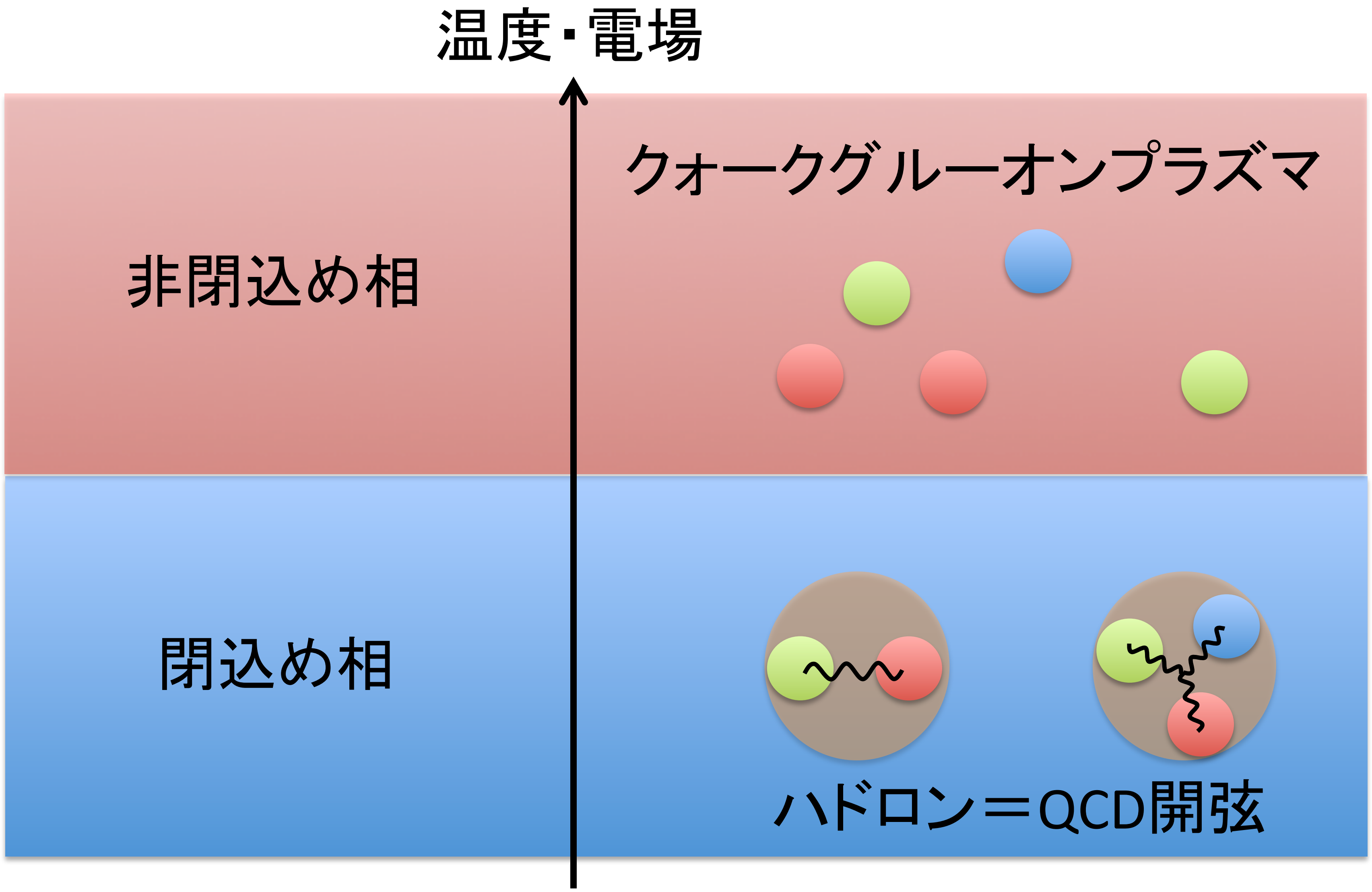
AdS/CFT による証左

有限温度、電場、時間依存電場、有限密度

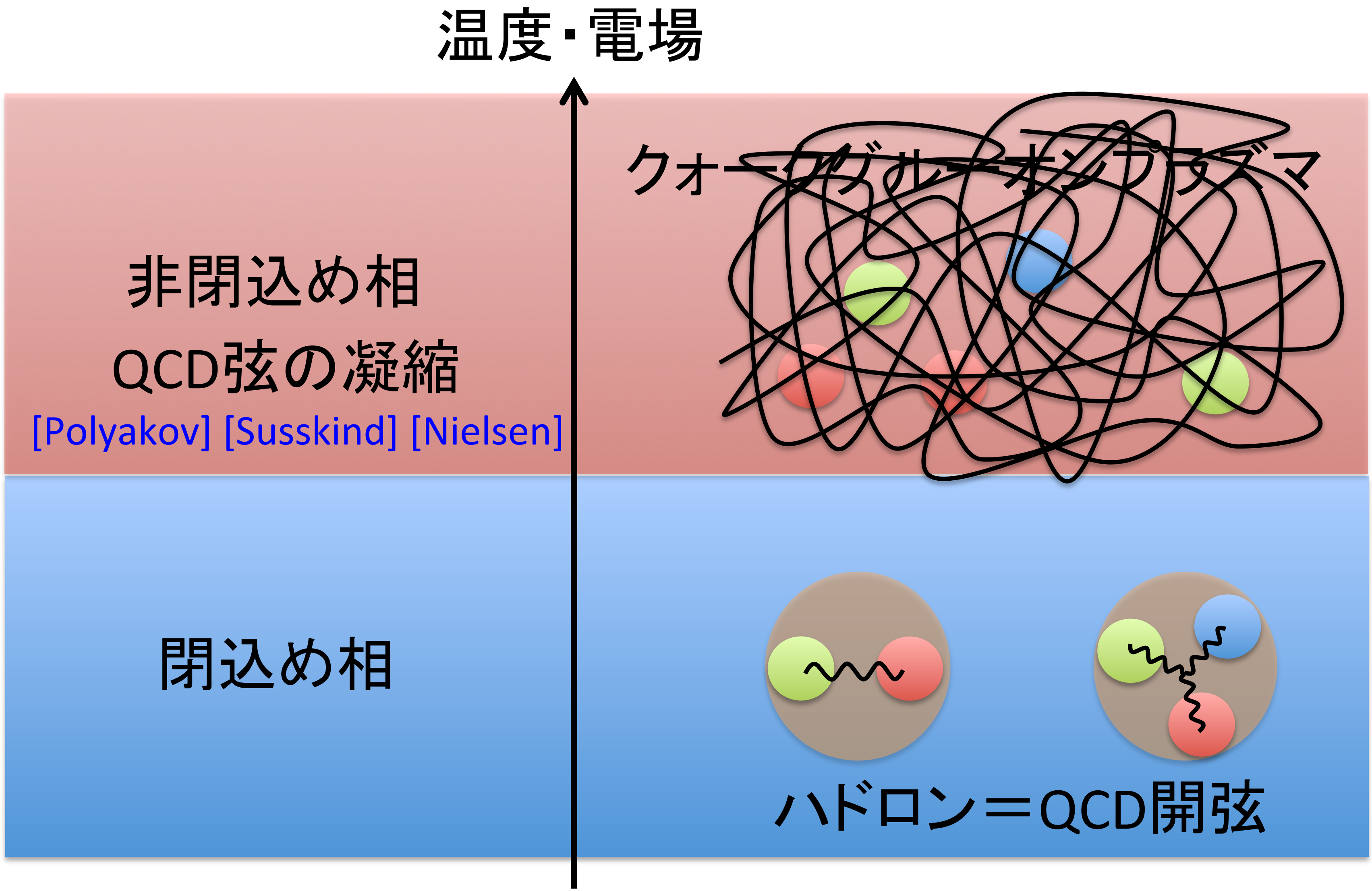
2

3

1 クォーク非閉込め ＝ 乱流的メソン凝縮



1 クォーク非閉込め ＝ 乱流的メソン凝縮



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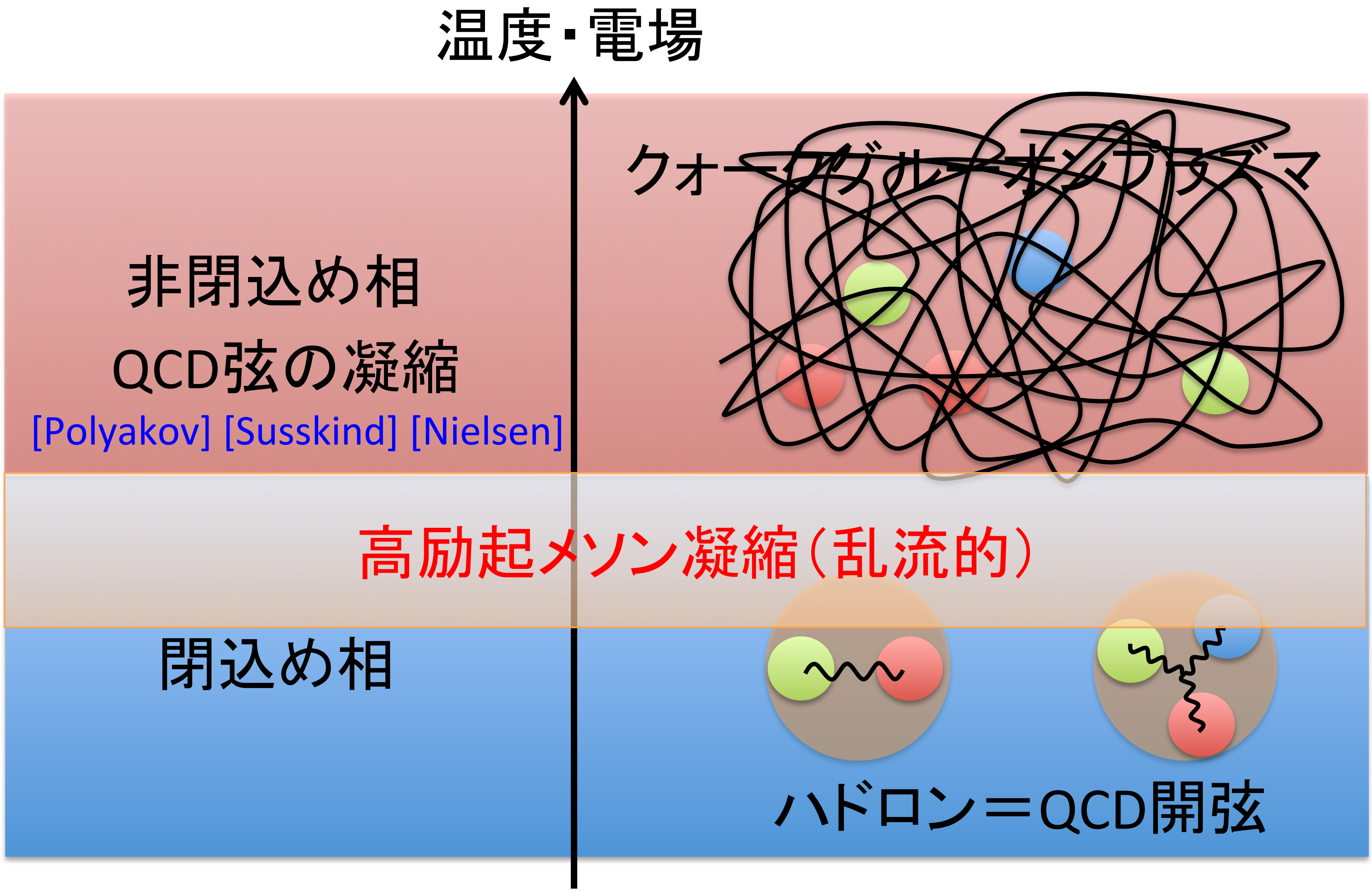
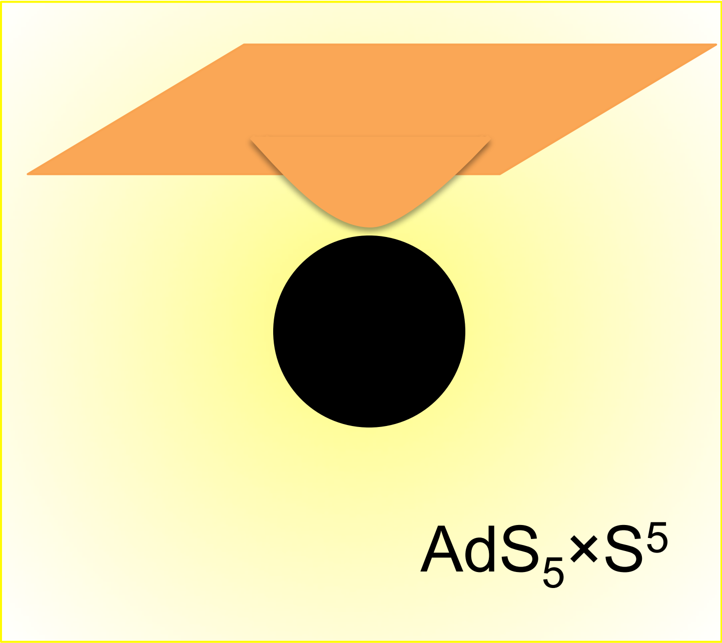


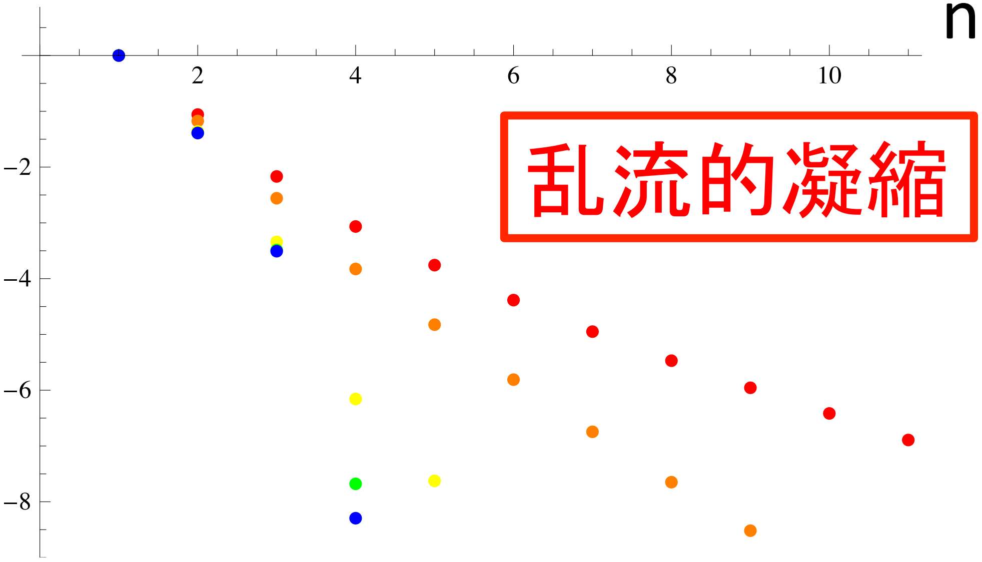
2

AdS/CFT 解析 1：有限温度

理論： N=2 超対称QCD、強結合・ラージN極限

高次元内のスカラー場（ブレーンの位置）＝励起メソン



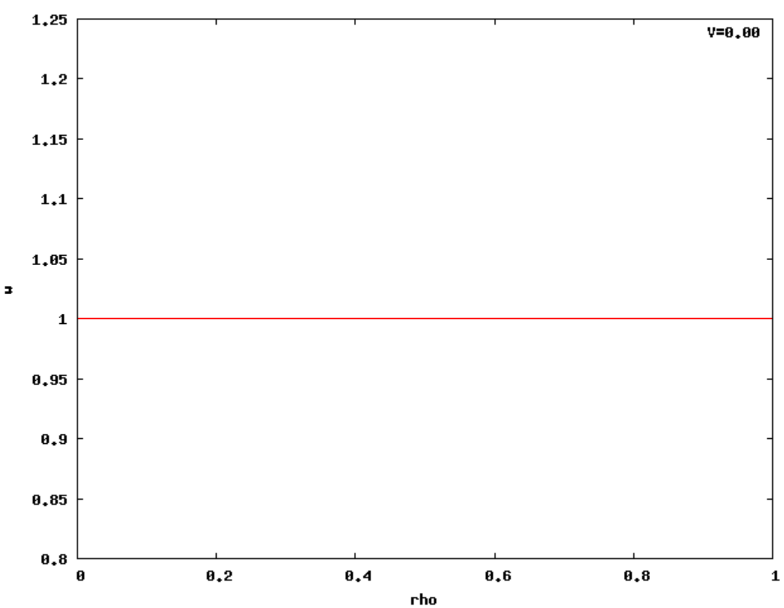


3 AdS/CFT 解析 ２: 時間依存する電場

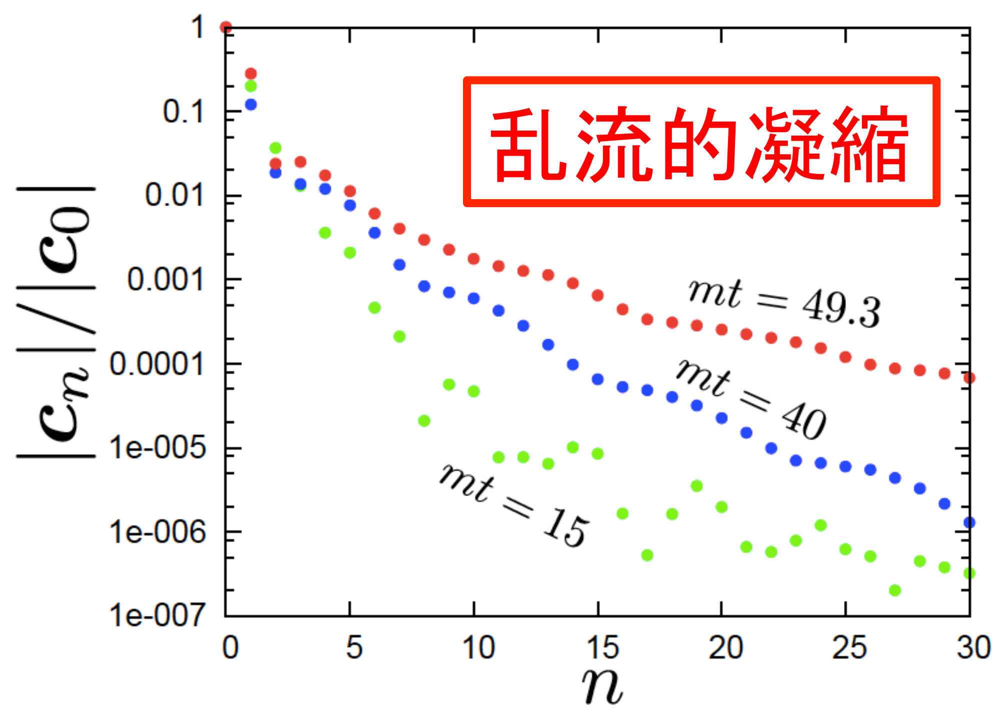
電場クエンチ → 時間が経つと非閉込め転移

ArXiv:1407.0798

ブレーンの位置



メソン期待値(log)



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AdS/CFT による証左

有限温度、電場、時間依存電場、有限密度

Workshop

"Turbulence and Chaos in AdS/CFT"

September 8th (Mon) 10:00-17:00 at H701 lecture hall, Osaka university

Organized by Koji Hashimoto (Osaka U / RIKEN)

Sponsored by Osaka U Theoretical Science Research Project

Co-sponsored by iTHES RIKEN