



# KEKSSP 2024 JOINT EVENT

ALISON TORMOS BELDA

2024/07/29

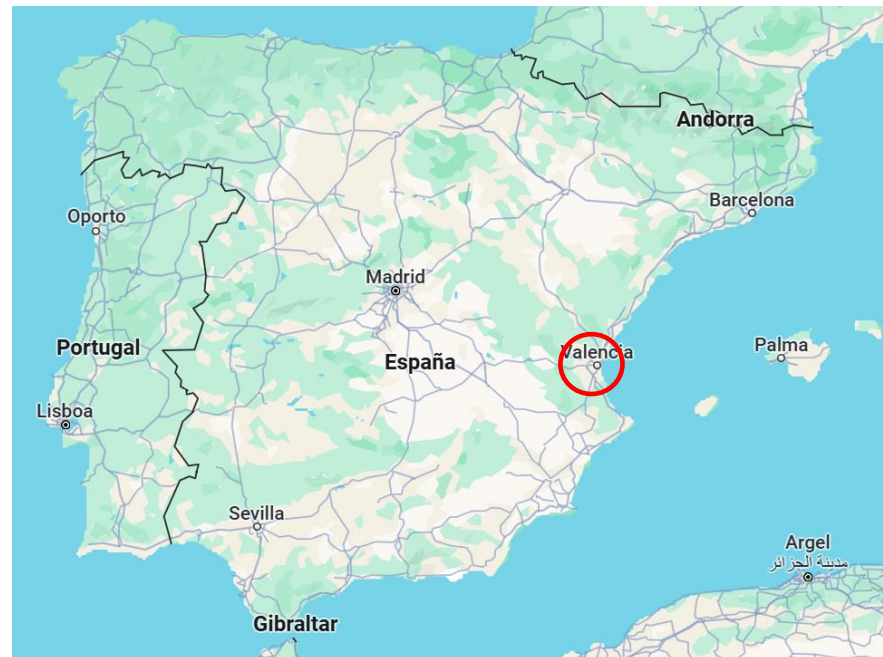
# SELF-INTRODUCTION

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- Montcada, València (Spain)



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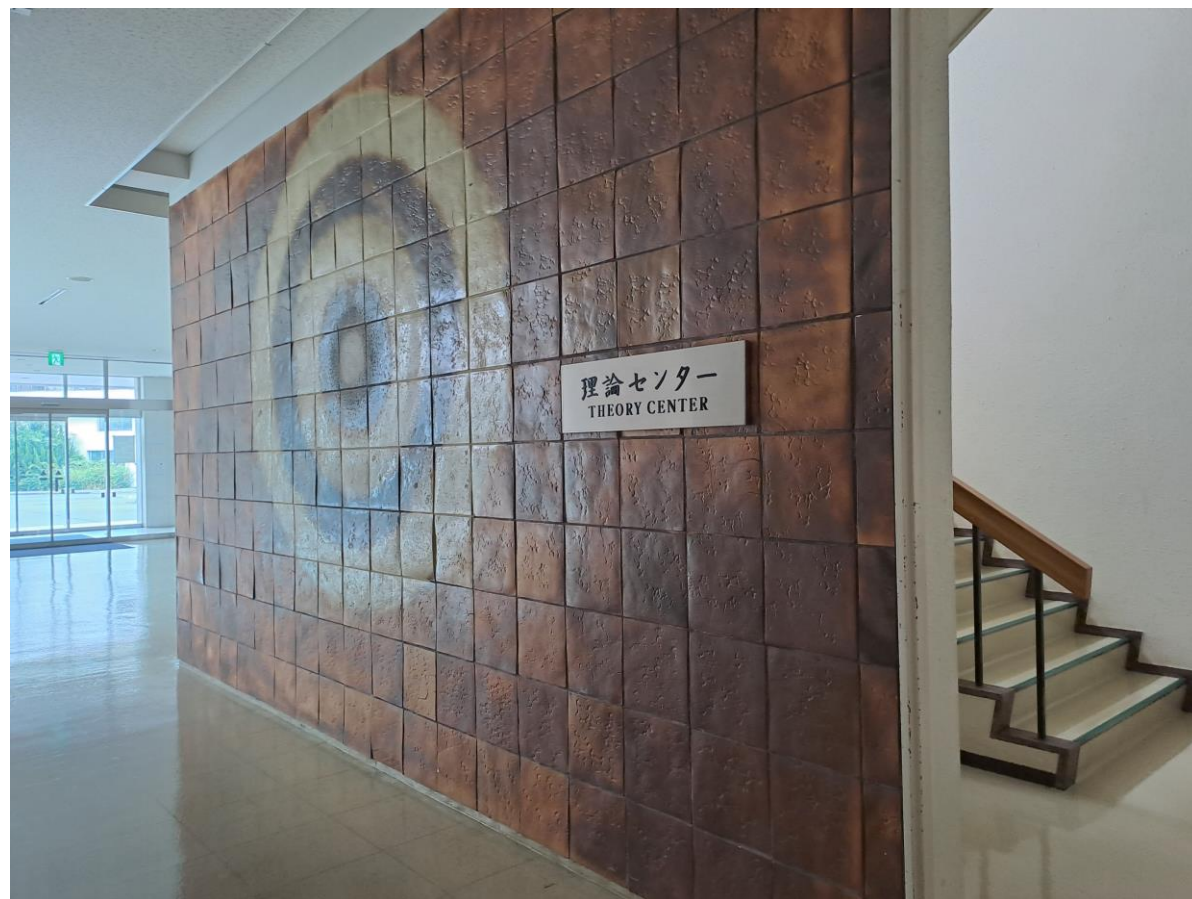
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# SELF-INTRODUCTION

- Alison Tormos Belda
- Montcada, València (Spain)
- University of Valencia
- Interested in Quantum Mechanics, QFT, Quantum Information Theory



# INTRODUCTION



**Institute of Particle and  
Nuclear Studies**



# INTRODUCTION


- QUARK TRANSITION AT FINITE TEMPERATURE
- B MESON DECAY

INTRODUCTION.

# FINITE TEMPERATURE TRANSITION

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quarks and gluons on hadrons  
(confined phase)

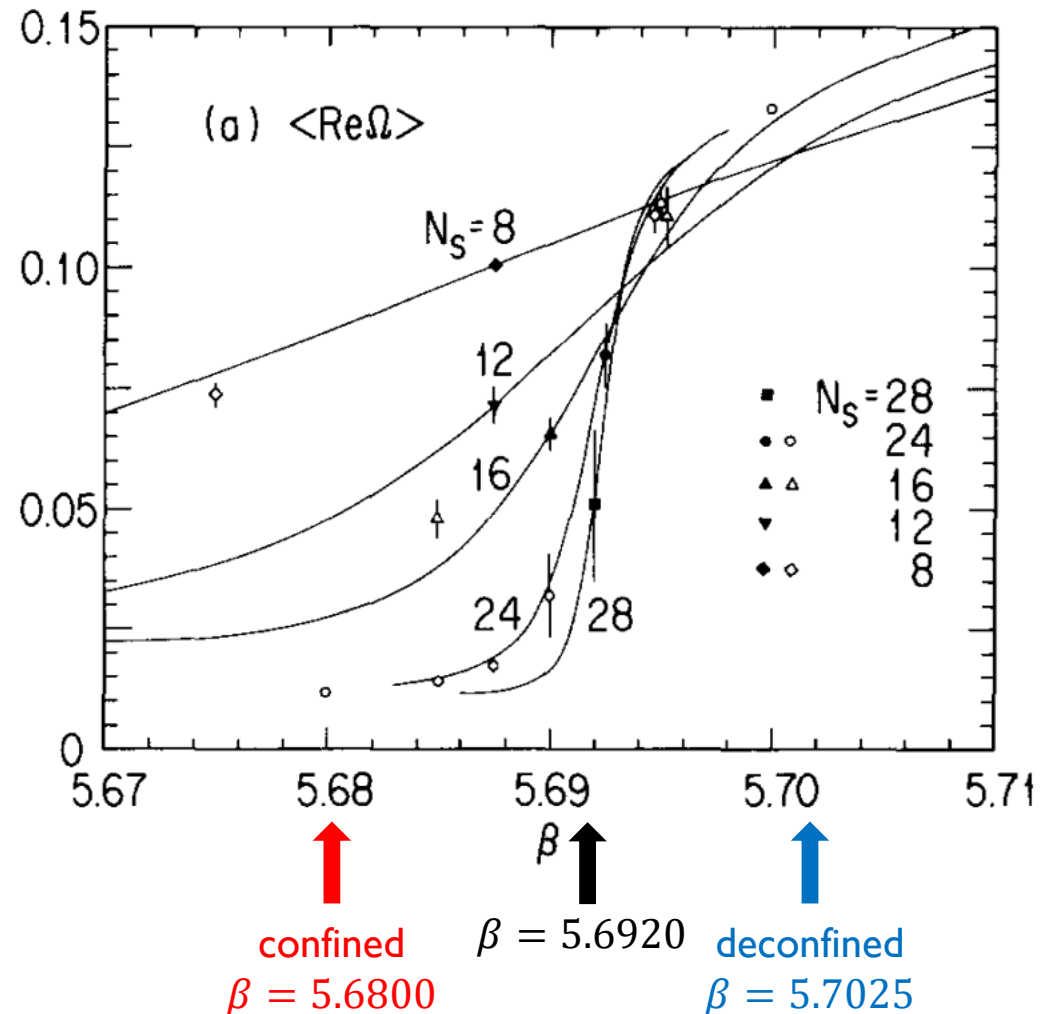
phase transition  
  
 $T_C \neq 0$

quark-gluon plasma  
(deconfined phase)

# INTRODUCTION. FINITE TEMPERATURE TRANSITION

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[Figure] Masataka Fukugita,  
Masanori Okawa, Akira Ukawa,  
Finite-size scaling study of the  
deconfining phase transition in  
pure SU(3) lattice gauge  
theory, Nuclear Physics B,  
Volume 337, Issue 1, 1990,  
Pages 181-232,

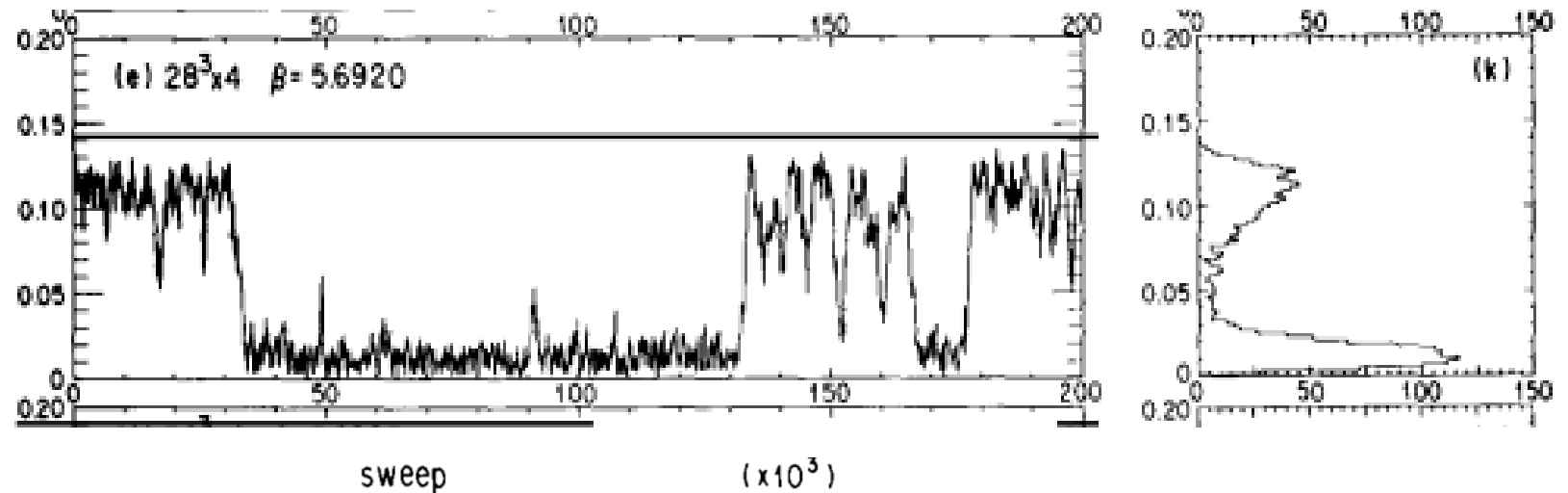


$$T = \frac{1}{aN_T}$$

# INTRODUCTION. FINITE TEMPERATURE TRANSITION

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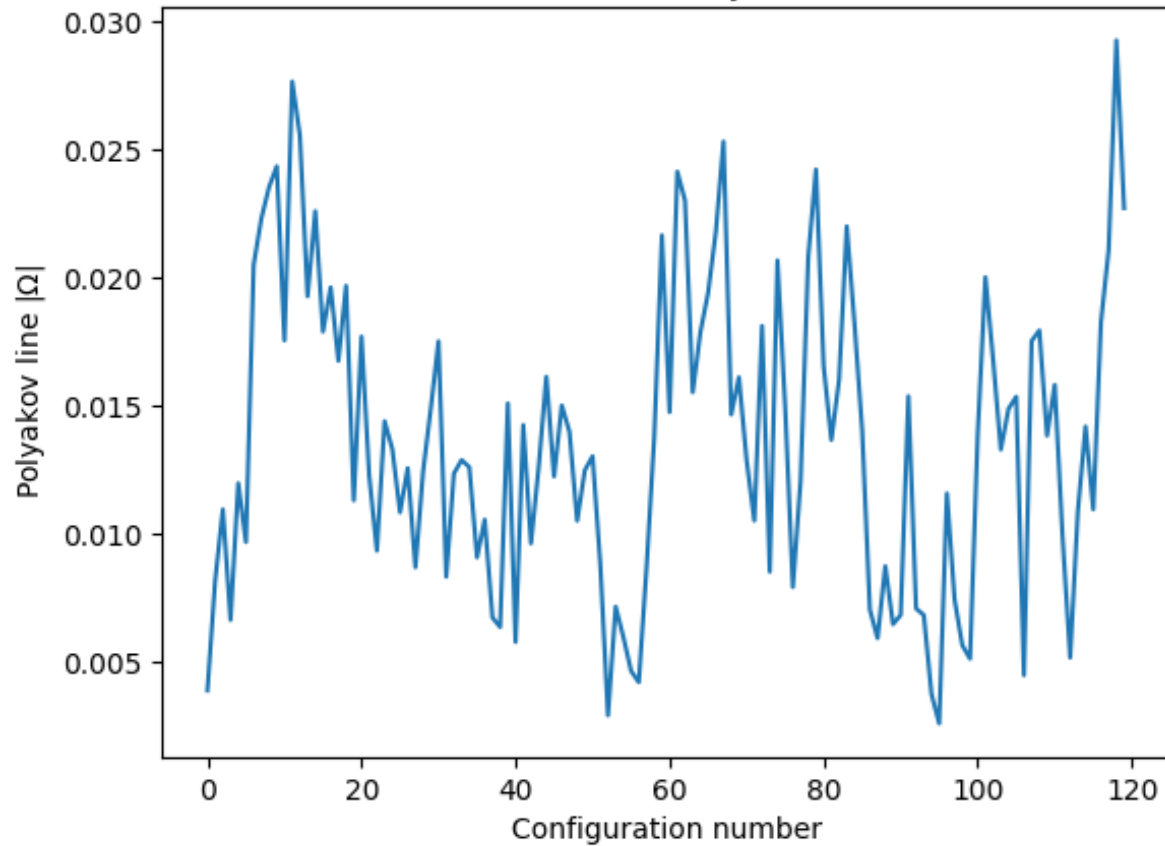
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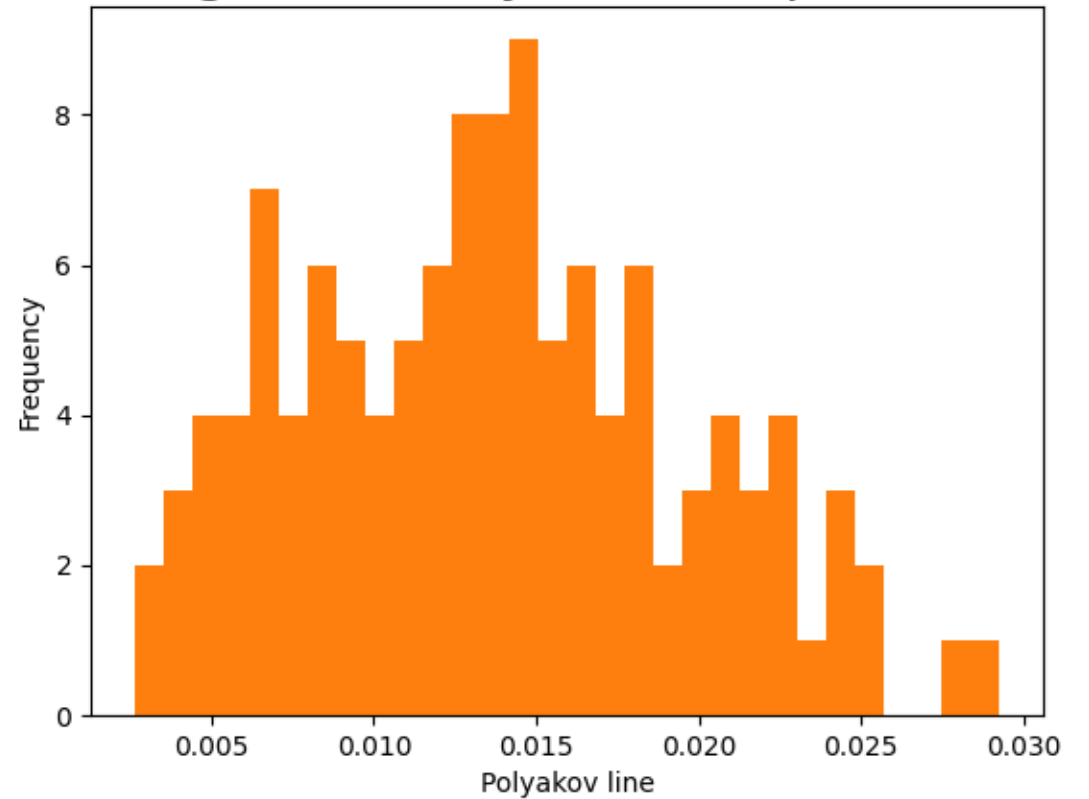
# RESULTS. CONFINED PHASE

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Production run  $\beta = 5.6800$



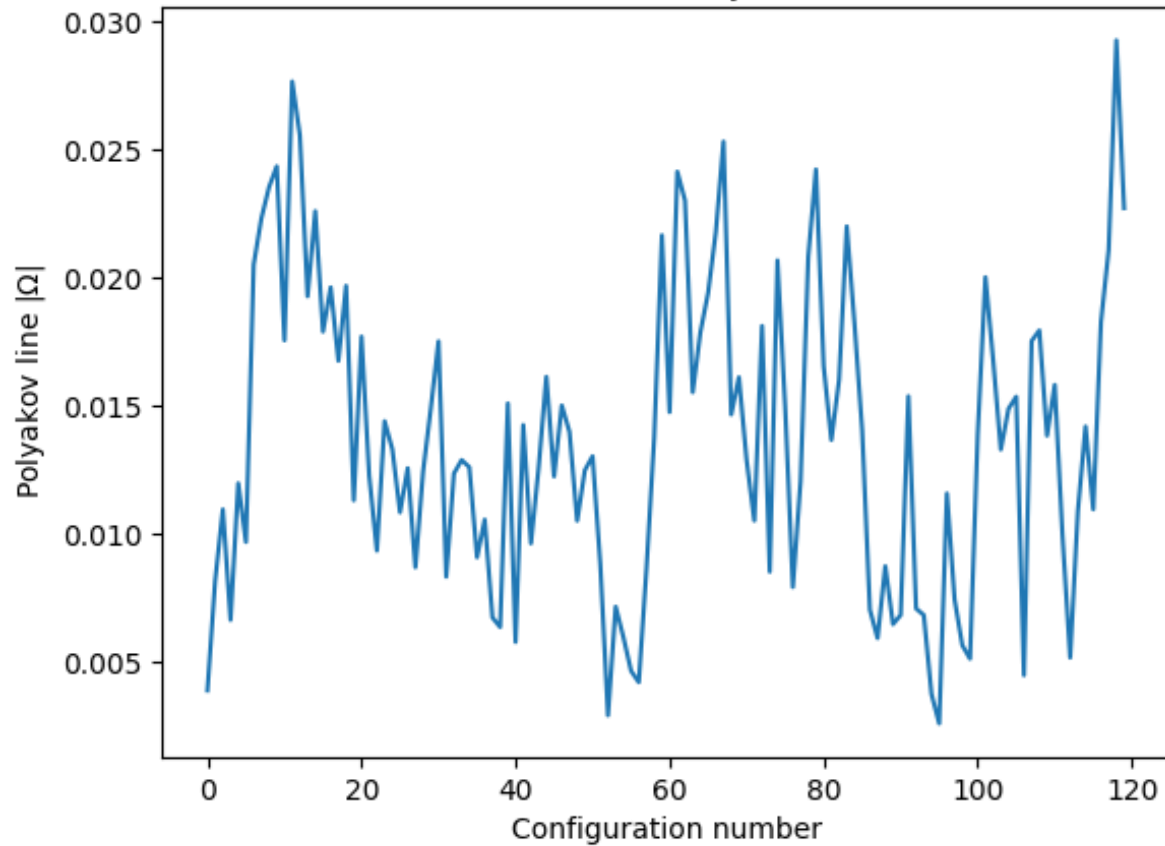
Histogram of Polyakov line  $\beta = 5.6800$



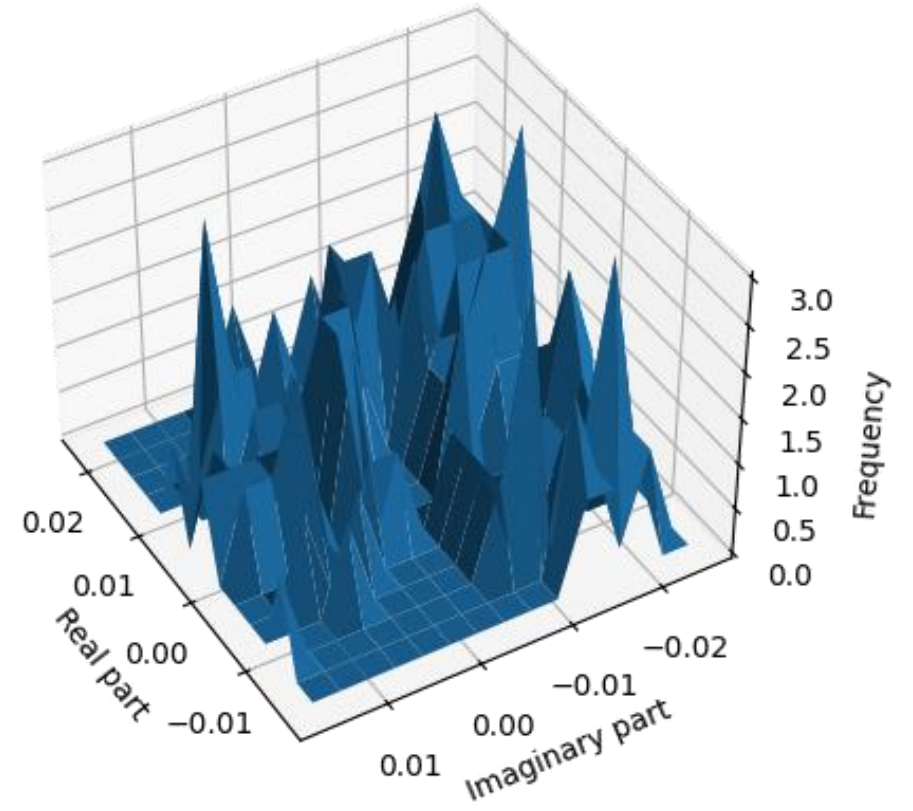
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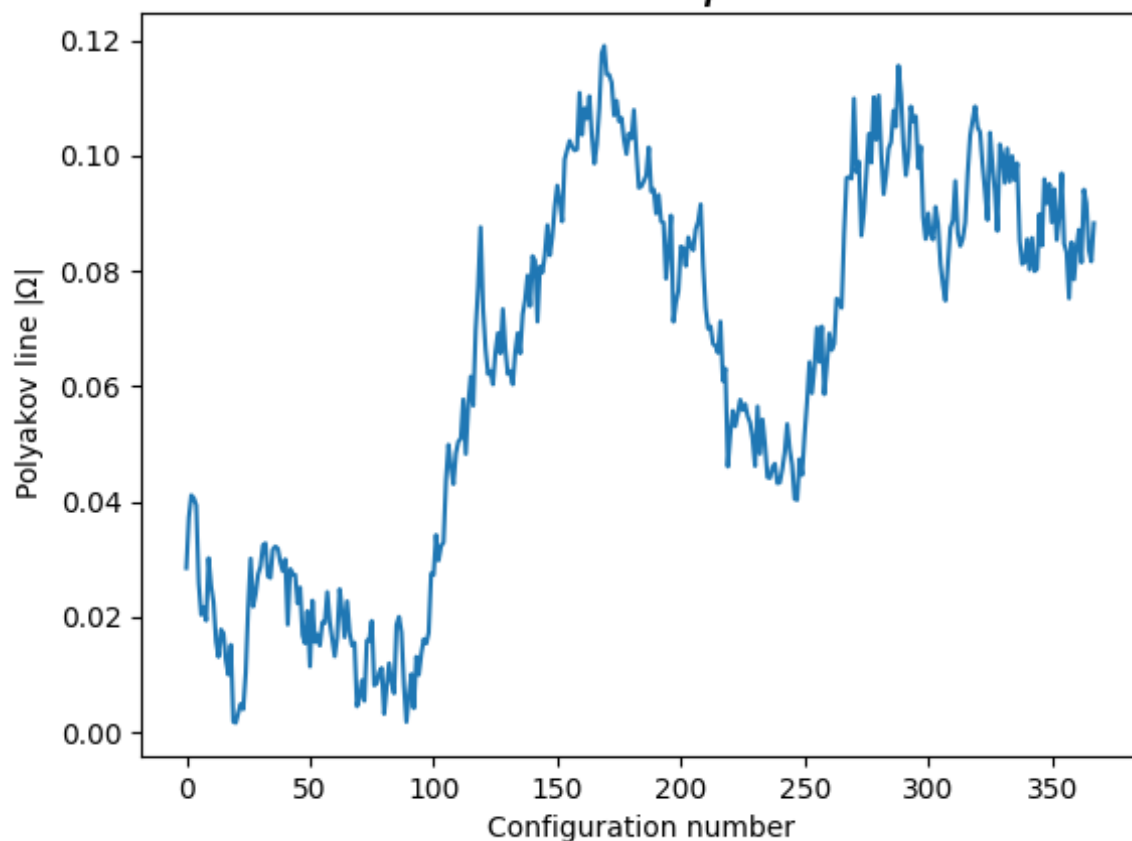


RESULTS.

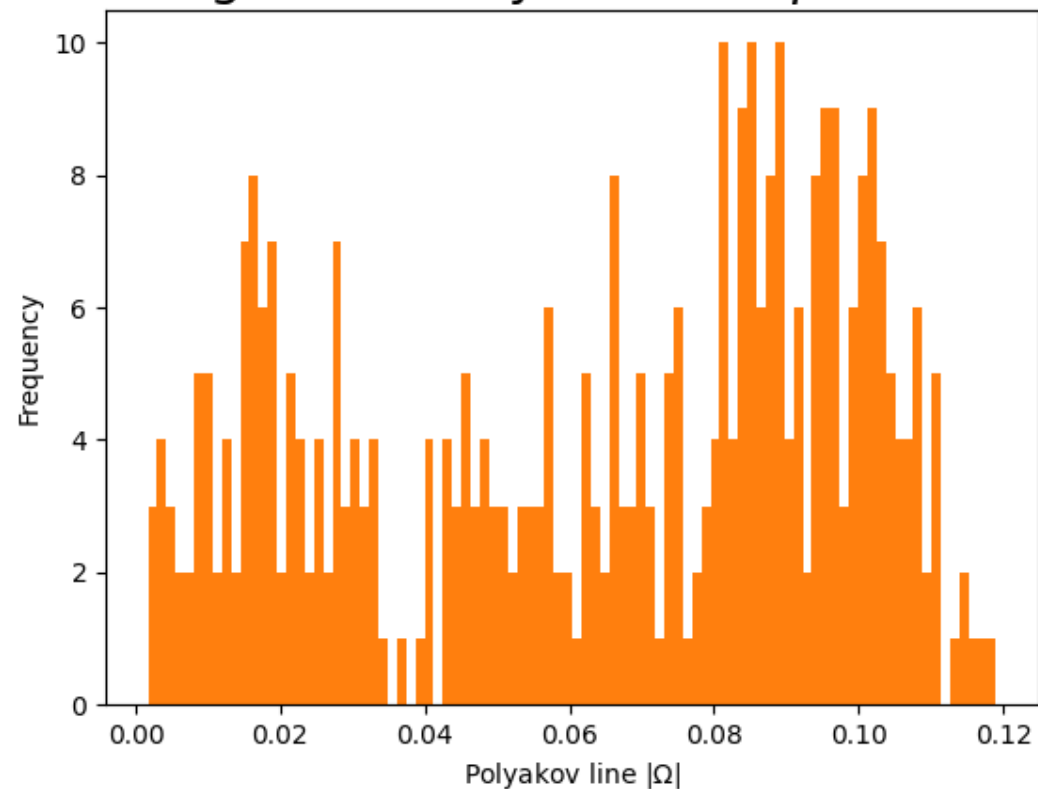
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# DECONFINING TRANSITION $\beta = 5.6920$ (370 CONFS.)

Production run  $\beta = 5.6920$



Histogram of Polyakov line  $\beta = 5.6920$



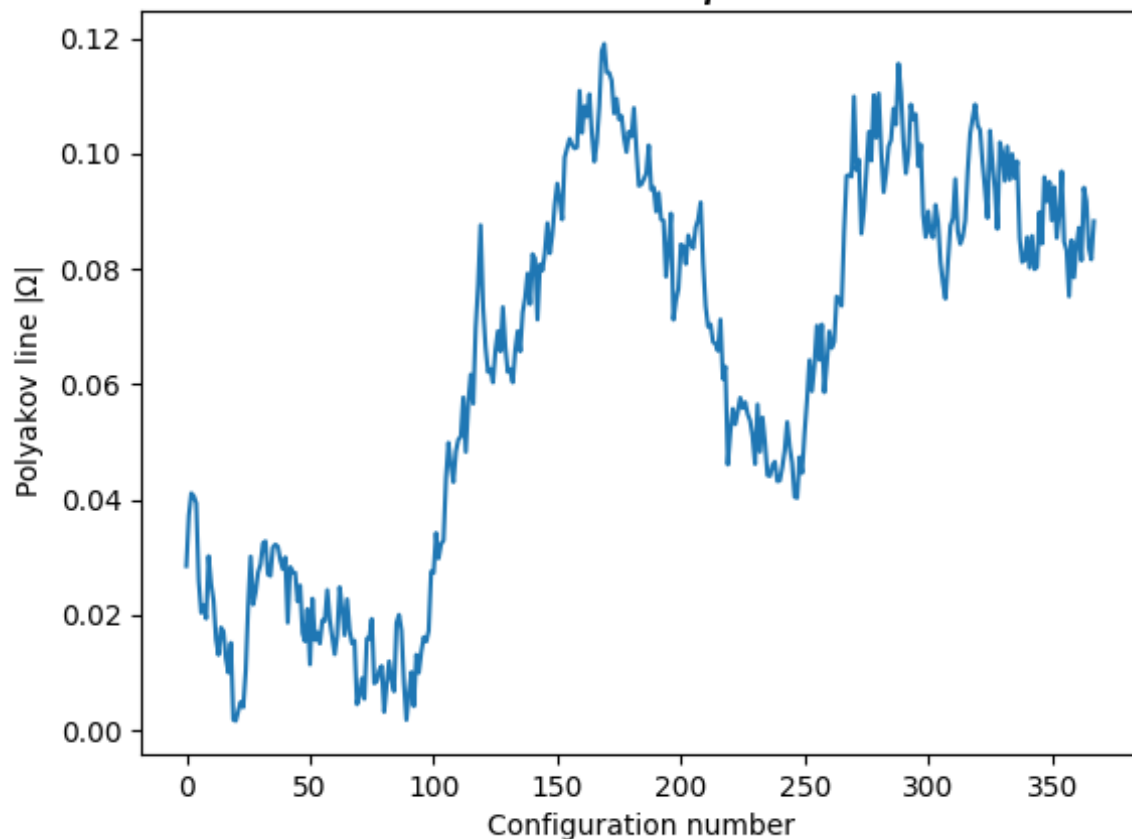


RESULTS.

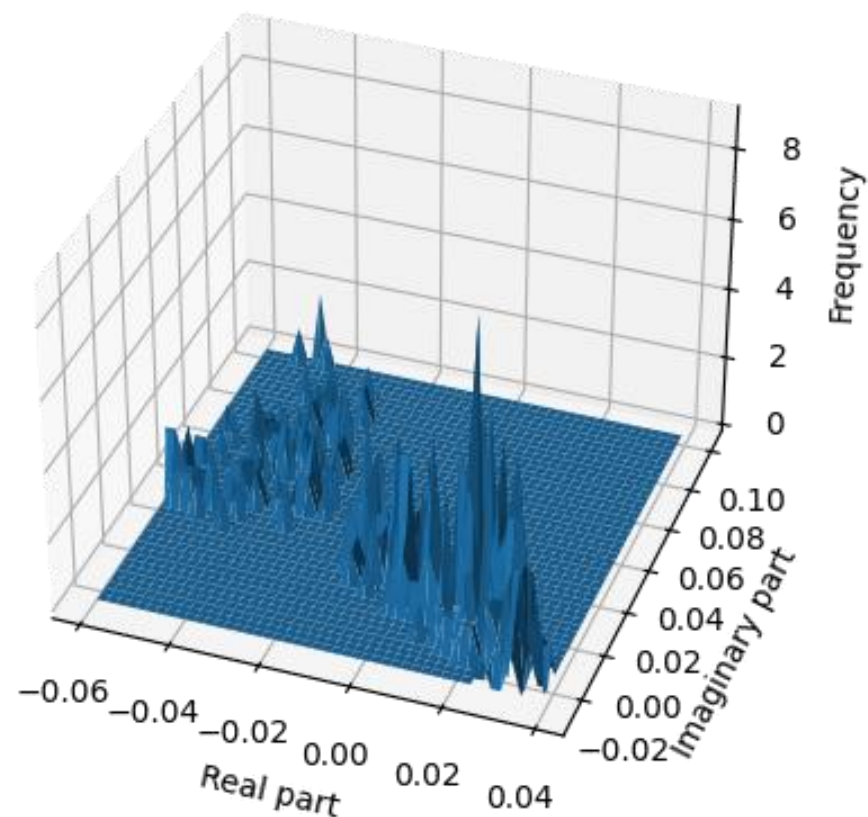
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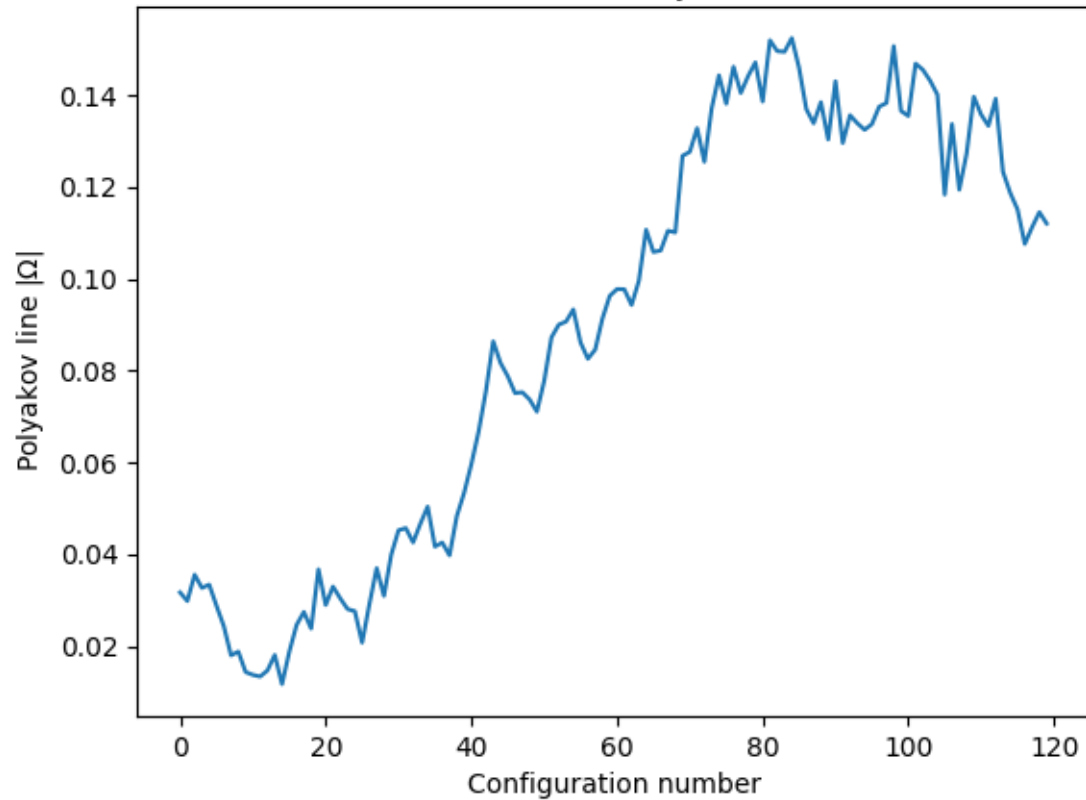
Histogram of Polyakov line  $\beta = 5.6920$



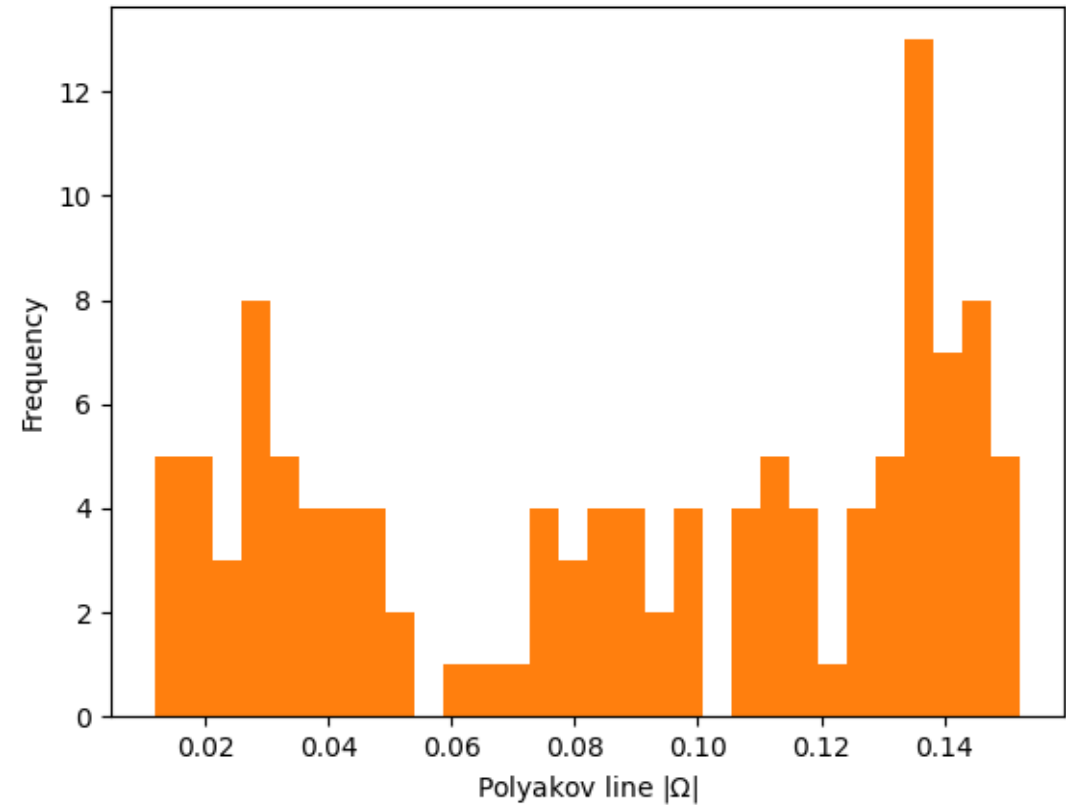
# RESULTS. DECONFINED PHASE

KEK SUMMER STUDENT PROGRAM 2024

Production run  $\beta = 5.7025$



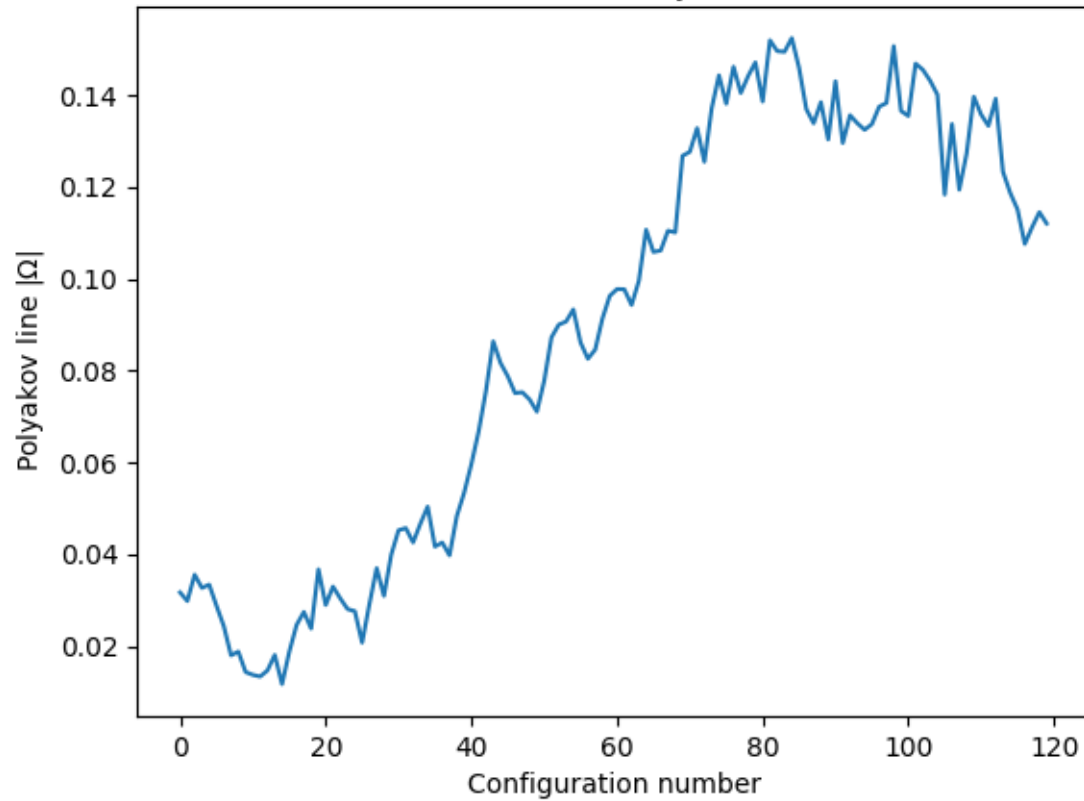
Histogram of Polyakov line  $\beta = 5.7025$



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KEK SUMMER STUDENT PROGRAM 2024

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