

# Giving physical meaning to $\mathcal{W}^k(\mathfrak{g}, x, f)$

Buisine Léo

Supervised by UhiRinn Suh

*Ecole Normale Supérieure of Paris  
Seoul National University*

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- 1 Introduction: CFTs and RCFTs
- 2 The WZW model
- 3 Reductions of the model
- 4 Classifying through pyramids

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# Quantum field theories

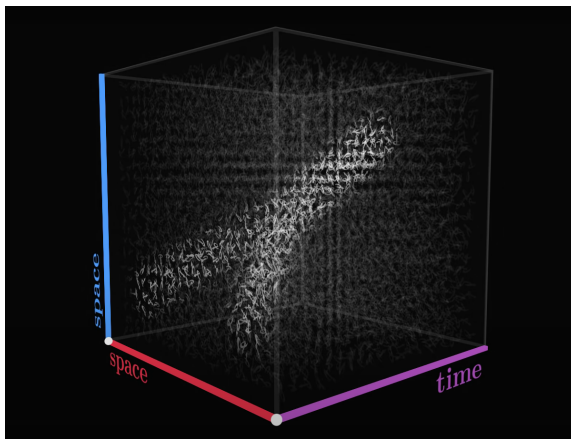


Figure 1: Illustration of a field

# Correlation functions

# OPE and algebra

# Conformal field theories

conformal symmetry made up of generators

## 2D CFTs and chirality

in 2D, on a string, massless  $\Rightarrow$  left or right



# RCFTs

classification

# W algebras

general definition

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# Objective

# The Sigma model

# Sigma model on Lie algebras

# Conformality at two levels

# Geometrical obstruction

In CFTs

$$[T, T] = 0$$

In our model

$$[J, J] = [T, T]$$



# The topological term

# The WZW model

# Hypothesis: curved AKM algebras

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# Toda field theory

# Generalizing conditions

# First-classness of the conditions

# Conformality of the reduction



## Other conditions

## Good gradings

Necessary for BRST, studied by Kac and ..

$$\mathcal{W}(\mathfrak{g}, x, f)$$

## Hypothesis: relaxing the conditions

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## Good gradings

Necessary for BRST, studied by Kac and ..

# From shifting constant to blocks

# From Hamiltonian term to pyramids



# Reading a pyramid

Exemple of  $W(\text{An, princip}) = W(2, 3, 4, \dots)$

## Hypothesis: explaining infinite W algebras

Hypothesis about infinite W algebra, linked to infinite pyramid, nice meaning