

All About Spinors

...on *flat* spacetime

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UO

Theory meeting, June 27, 2024



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Some Philosophical Motivation

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- Special/General covariance \rightarrow Special/General relativity

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- Bargmann ('54): reps up to sign are *exactly* the true reps of the universal cover

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- In fact, $\widehat{ISO(3, 1)^+} \cong ISL(2, \mathbb{C})$

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 - ▶ \rightarrow use $\epsilon^A{}_B, \epsilon_C{}^D$ and their conjugates to avoid confusion

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- Define $g : V \times V \rightarrow \mathbb{R}$ by $g_{AA'BB'} := \epsilon_{AB}\bar{\epsilon}_{A'B'}$
 - ▶ g is nondegenerate with signature $(+, -, -, -)$; a Lorentz metric!
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Spinors and Null Vectors

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The Universal Enveloping Algebra

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Representations and Hilbert Space

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Summary

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