Séminaire commun

Complex spins and four dimensions

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Mardi 3 Mai 2022 à 14:00

LPENS – L361 (24 rue Lhomond)

Résumé

Quantum field theorists often perform analytic continuations of functions, defined over integers, Dimreg, replicas, and Regge poles being just a few examples. I suggest physical interpretation to some of these complexifications, using deconstruction and supersymmetry. As an example, I explain how the good old quantum mechanics on coadjoint orbits producing irreps of compact Lie groups becomes a four dimensional supersymmetric gauge theory producing complex spin representations of the associated complex Lie algebras, at the example of the celebrated Knizhnik-Zamolodchikov equation and, if time permits, Knizhnik-Zamolodchikov-Bernard equation, and connection to geometric Langlands program and Hecke operators.