

Congresso di Dipartimento e della Sezione INFN di Pavia



Contribution ID: 13

Type: not specified

Boundary Conditions and Dirac Fields on AdS

Given Dirac fields on AdS_n in Poincaré chart, one wishes to classify the boundary conditions at conformal infinity that ensure the existence of advanced and retarded propagators. Here this analysis is carried out for each mass window. In particular, the well-known MIT-bag class is distinguished from a generalized family, thereby extending to arbitrary dimensions the procedure initiated by D. Serrano-Blanco. As in the scalar case, it is shown that suitable generalized boundary data can support bound states. In four dimensions, two explicit examples are reported: (i) the MIT case, for which the advanced/retarded propagators and the two-point function of the associated ground state are constructed, and (ii) a representative generalized boundary condition, for which the propagators are constructed and a normalizable bound state is exhibited.

- Based on the pre-print arXiv 2511.10225

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Session Classification: Caffè e poster (dal N. 9 al N. 51)