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Broken (super) conformal Ward identities at finite temperature

Wednesday, 20 December 2023 16:00 (10 minutes)

I will present recent developments in the understanding of conformal field theories at finite temperature, based on hep-th/2306.12417.

When a (super) conformal field theory is placed on a non-trivial manifold, the (super) conformal symmetry is broken. However, it is still possible to derive broken Ward identities for these broken symmetries, which provide additional constraints on the theory. I will discuss how to derive and apply the broken Ward identities associated with the (super) conformal group on the thermal manifold $\mathcal{M}_\beta = S_\beta^1 \times \mathbb{R}^{d-1}$, and I will show how the novel constraints not only systematically reproduce known results, including an implicit formulation of the generalized Cardy formula, but also elegantly relate the thermal energy spectrum with the conformal spectrum.

Primary author: MARCHETTO, Enrico

Co-authors: MISCIOSCIA, Alessio (DESY); POMONI, Elli (DESY and Hamburg University)

Presenter: MARCHETTO, Enrico

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