

Whispers from the Dark Universe - Particles & Fields in the Gravitational Wave Era

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WHISPERS FROM THE DARK UNIVERSE – PARTICLES & FIELDS IN THE GRAVITATIONAL WAVE ERA

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Conformal line defects at finite temperature

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The study of line defects in conformal field theories (CFTs) is a crucial area of research, as they describe a wide range of physical phenomena from magnetic impurities in condensed-matter systems to the radiation of moving quarks in high-energy physics. A notable class of defects, called *conformal defects*, breaks the conformal symmetry in a controlled way, with the residual symmetry imposing significant constraints on observables.

In this talk, I report on recent developments in the study of line defect CFTs at *finite temperature*. Focusing on the specific case of line defects wrapping the thermal circle, we identify the OPE data necessary to solve the correlation functions of a given model. From consistency conditions on two-point functions, we derive novel sum rules that can be used to set up a bootstrap problem. These results are illustrated for free theories and for the $O(N)$ model, where computations can be performed analytically.

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