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Type: **Lecture / lecture series**

Operator expansions, layer susceptibility and two-point functions in BCFT

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We found that in boundary conformal field theories, there exists a one-to-one correspondence between the boundary operator expansion of the two-point correlation function and a power series expansion of the layer susceptibility.

This general property allows a direct identification of the boundary spectrum and expansion coefficients from the layer susceptibility and opens a new way for efficient calculations of two-point correlators in BCFTs.

To show how it works we derive an explicit expression for the correlation function $\langle \phi_i \phi^i \rangle$ of the $O(n)$ model at the extraordinary transition in $4 - \varepsilon$ dimensional semi-infinite space to order $O(\varepsilon)$.

The bulk operator product expansion of the two-point function gives access to the spectrum of the bulk CFT. In our example, we obtain the averaged anomalous dimensions of scalar composite operators of the $O(n)$ model to order $O(\varepsilon^2)$. These agree with the known results both in ε and large- n expansions.

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