



ID de Contribution: 76

Type: **Lecture / lecture series**

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

*mercredi 26 mai 2021 10:00 (1 heure)*

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  $\varepsilon$  and large- $n$  expansions.

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