

Reading seminar on conformal field theory

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- Format:
- Talks by participants
 - Everyone is expected to read and study along as we go

What is CFT (more precisely in 2D)?

- Conformally invariant QFT
 - Scale invariant (looks the same on all scales)
 - Describes RG fixed points
 - Suitable for 1D quantum systems and 2D classical systems
- Has interesting mathematical structure
 - Complex analysis
 - Infinite dimensional Lie algebras, vertex algebras
 - Tensor categories and quantum groups
 - Combinatorics, number theory, modular forms
- Has important applications
 - Spin chains (XXX, XXZ, ...)
 - 2D lattice models (Trig, Potts, ..., 6 vertex model)
 - String theory (scattering amplitudes, low energy effective actions)
 - Boundary of topological materials / TQFTs (FQHE, Chern-Simons theory)
 - Percolation, stochastic Loewner evolution, geometry of fractal curves

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Goal: loves basic structure, formalism and models of conformal field theory...

Why Ginyang? - Short but self-contained
- Freely available online

⚠️ Feel free to also consult other literature but stick to Ginyang with regard to notation and content selection (except advised otherwise)