SRS

SwissMAP Research
Station in Les Diablerets

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Convexity, large charge and the large N Φ4 theory

Monday 12 September 2022 15:30 (30 minutes)

I will discuss the O(2N) vector model with a quartic interaction at leading order in N, in a setting that allows for large charge methods to be deployed. I will then discuss the phase space in dimensions D = 3 and D = 5 based on the convexity properties of the grand potential. We find very different behaviour in the two cases: While in D = 3, the theory is well-behaved, the model in D = 5 leads to a complex CFT in the UV. We also find a new metastable massive phase in the high-energy regime for the theory on the cylinder.

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