



Contribution ID: 93

Type: 3rd week (Nishinomiya-Yukawa symposium)

Lee-Yang zeros for locating a critical point

Wednesday, October 30, 2024 4:30 PM (30 minutes)

We propose a new method to use Lee-Yang zeros to search for a critical point in numerical analyses. We show that the ratios of the Lee-Yang zeros calculated on various spatial volumes have a crossing at the critical parameter. We find that this property allows us to determine the location of a critical point that appears in a model in a straightforward manner. The method is adopted to locate the critical point in the 3-dimensional 3-state Potts model at nonzero external field.

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Session Classification: Nishinomiya-Yukawa workshop