

The inverse problem of the study of Quasicrystal

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Abstract

The inverse problem of the study of Quasicrystal is to specify the microstructure of a quasicrystal based on its diffraction picture. It is impossible in general case. In my first paper with Dr. Moody, we proved that for a quasicrystal could be represented by a multicolour set, the summation information of 2-point, 3-point, \dots autocorrelation measures suffice to determine the quasicrystal. Especially, for an n -th order Markov Chain, we only need the $(n+1)$ - point autocorrelation to solve it.