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On the solvability of general cubic equations over \mathbb{Z}_p^* (Article)

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Abstract

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The p-adic models of statistical mechanics require an investigation of the roots of polynomial equations over p-adic fields in order to construct p-adic Gibbs measures. The most frequently asked question is whether a root of a polynomial equation belongs to some given domains. In this paper, we study the solvability of general cubic equations over \mathbb{Z}_p^* where prime $p > 3$. Our investigation enables us to describe all translation invariant p-adic Gibbs measures on a Cayley tree of order three. © 2017, Science Society of Thailand under Royal Patronage. All rights reserved.

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p-adic number Solvability criterion

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