

Complexity of etc etc

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Abstract

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I. PHASE TRANSITIONS IN COMPUTATIONAL COMPLEXITY

A. Background

1. *Constraint Satisfaction Problems (CSP)*

a. *Examples*

kSAT

Graph-coloring

Spin models

error-correcting codes

b. *Observation of threshold behavior in CSP*

c. *Difficulties in tackling phase behavior of CSP*

2. *Proposal: study complexity of percolation model*

B. Percolation

1. *The Model*
2. *Background / applications*

C. PRAM

1. *Applications in comp sci*
2. *PRIORITY CRCW*

D. Parallel Algorithm for Percolation

E. Results

1. *D_2 vs. p for several system sizes L*
2. *$\log(D_2)$ vs. $\log(L)$*
3. *Distribution of cluster sizes*
 - a. *logarithmic or power law? (power law \rightarrow algorithm will often fail)*