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Discontinuous percolation transition in hidden in continuous percolation transition YOUNG SUL CHO, BYUNGNAM KAHNG, Seoul National University — Diffusion limited cluster aggregation model is the well known model which describes the aggregation of diffusive clusters. In this model, time t is defined so as to describe the situation in which clusters follow Brownian motion. Thus t defined in this model can be regarded as real time. In this presentation, we introduce a new variable $p$which increases as much as $\delta p = 1/N$ whenever two distinct clusters aggregate. We use p instead of t to study a percolation problem in diffusion limited cluster aggregation model. Then, we find that a discontinuous percolation transition occurs if we observe the growth of the largest cluster as a function of the transformed variable p. This result implies that a continuous percolation transition can be observed as a discontinuous percolation transition when a controlled parameter is changed.

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