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Percolations on hypergraphs BRUNO COELHO COUTINHO, Center for Complex Network Research and Department of Physics, Northeastern University, Boston, Massachusetts 02115, USA, Y.-Y. LIU, Channing Division of Network Medicine, Brigham and Women's Hospital and Harvard Medical School, H.-J. ZHOU, State Key Laboratory of Theoretical Physics, Institute of Theoretical Physics, Chinese Academy of Sciences, Beijing 100190, China — We analytically study the emergence of the giant component, two-core and core in uniform and non-uniform hypergraphs. We show that depending on the leaf definition and in the hypergraph rank distribution the 2-core can emerge as a hybrid phase transition our as a continuous phase transition and we provide a analytical condition for the existence of the hybrid phase transition. We found that in hyperpgrahs there are two meaningful versions of the greedy leaf removal (GLR), associated with two different leaves and intimately related with the vertex and edge cover problem. We study the emergence of the core for both cases, and we show that both of the cores emerge as a continuous phase transition for the considered distribution.

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