

What happens in a very huge network?

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The computer network we use currently is getting larger and larger and we expect that the growth of such a network gives us more powerful and more comfortable services. However, something unexpected or something trouble might occur in future as the network grows larger and larger. We would like to make a theory that foresees it. For example, what is called “Ramsey type theorem” suggests us the existence of unavoidable structures for an enough large system. In fact, Negami have already proved a theorem, as one of Ramsey type theorems, that any spatial embedding of the complete graph having enough many vertices contains a prescribed stereographical structure as like a knot, a link or a spatial graph. We will propose one direction toward analysis of very huge networks, introducing some mathematical phenomena.