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Searching dynamics on networks: a new perspective and results

Parongama Sen

Department of Physics, University of Calcutta, 92 APC Road, Kolkata 700009

Email: psphy@caluniv.ac.in

Search schemes which are realistic in the sense that not all search chains can be completed are considered on different types of networks. It is shown that not simply the search path length but the ratio μ of the success rate to the search path length is a more meaningful measure in this case. μ in general shows a sublinear power law scaling with the number of nodes. Several aspects like the effect of a phase transition, funnelling etc. are investigated in realistic searching processes using different searching algorithms.