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Parallel Cleaning of a Network with Brushes

We consider the process of cleaning a network where at each time step, all vertices that have at least as many brushes as incident, contaminated edges, send brushes down these edges and remove them from the network. An added condition is that, because of the contamination model used, the final configuration must be the initial configuration of another cleaning of the network. We find the minimum number of brushes required for some classes of graphs; and for all networks when all edges must be cleaned on each step. Finally, we give bounds on the number of brushes required for complete networks.

This is joint work with S. Gaspers, R. J. Nowakowski, P. Pralat.