

Evolution of citation networks with aging of vertices.

Soma Sanyal *

*School of Library and Information Science,
Indiana University, Bloomington, IN 47405*

Abstract

The growth of citation networks depends on the average connectivities of the papers cited and their ages. Previous models which include the aging of vertices have considered either a power law dependence or an exponentially decaying function in the continuum model. We use the master-equation approach to model a growing network where the aging probability depends on the Weibull function. Our motivation for using the Weibull function comes from the TARL (for topics, aging and recursive linking) model. We solve the equation numerically and analytically (with some approximations) and test our solutions against real citation data.

* e-mail: ssanyal@indiana.edu