



**LSU** | College of  
Human Sciences & Education  
School of Library & Information Science

**11:00 a.m.**  
**April 14<sup>th</sup>, Thurs.**  
Digital Media Center  
(DMC) 1034



# Bibliometric Models and Preferential Attachment

**A RESEARCH PRESENTATION** BY DR. LARRY SMOLINSKY, DEPARTMENT OF MATHEMATICS

Larry Smolinsky is Roy Paul Daniels Professor of the Department of Mathematics at LSU. This research talk highlights Smolinsky's recent work on citation analysis and a proposed preferential attachment approach to examine the growth aspects of the stochastic models by Simon and Price.

Two of the three basic laws that influenced bibliometrics/scientometrics/informetrics in the early 20th century are power laws. We discuss these laws and, in general, power laws as probability distributions.

We then turn to a description of a model for the accumulation of citations that predicts a power law. It has been studied for more than 50 years. The most recent popularization via graphs is known as preferential attachment. This model has been used as a possible explanation of power laws in a wide variety of contexts from distributions of cities to distributions of web links. We discuss its limitations and competitors in the context of citation analysis and the examination by Smolinsky-Lercher-McDaniel using Markov chains.

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