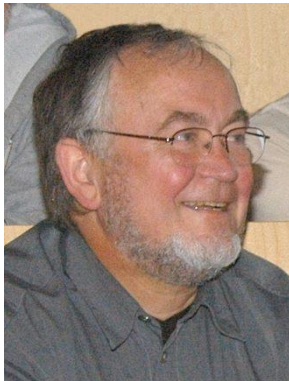ulm university   universität

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Einladung
zum
Physikalischen Kolloquium
Montag, 07.05.2018
16:15 Uhr in N24/H13

Prof. Michael Schreiber
Institut für Physik
Technische Universität Chemnitz

On time evolution of the Hirsch index: inertia versus predictability

The Hirsch index or *h*-index is widely used to quantify the impact of an individual's scientific research output. I present an analysis of two case studies. Difficulties with the determination of the index and its interpretation are discussed.

Fractionalised counting of the publications (rather than the citations) is an appropriate way to distribute the impact of a paper among all the coauthors of a multi-authored manuscript, leading to a simple modification of the *h*-index. On the other hand the exclusion of self-citations allows one to sharpen the index, what is appropriate, because self-citations are usually not reflecting the significance of a publication.

In order to take into account the highly skewed frequency distribution of citations, Egghe proposed the *g*-index as an improvement of the *h*-index. The *g*-index discriminates better between different citation patterns.

Hirsch claimed the high predictability of the *h*-index. I show that the evolution of the *h*-index with time is dominated for several years by citations to previous publications rather than by new scientific achievements. Consequently, the *h*-index can be used as a predictor of itself. On the other hand, the inert behavior of the *h*-index raises questions, whether the *h*-index can be used profitably in academic appointment processes or for the allocation of research resources.

This inertia can be circumvented by restricting the evaluation to a citation time window. I report results of an empirical study analyzing the evolution of the thus defined timed *h*-index in dependence on the length of the citation time window. This variant does not favor older scientists.

Whether *h* or *g* or one of their variants are measures of importance and significance is a debatable and debated question. Therefore, as an alternative, percentile-based indicators have attracted more attention recently. Topical developments like the fractional scoring are presented and applied for a case study with empirical data.

Ab 16.00 Uhr Kaffee, Tee und Kekse vor dem Hörsaal H13
Organisation: Prof. Dr. F. Jelezko, Tel. 23750
Host: Prof. Dr. P. Reineker, Tel. 23130