



# MEASURING THE EVALUATION AND IMPACT OF SCIENTIFIC WORKS AND THEIR AUTHORS

BOZHIDAR Z. ILIEV

---

**Abstract.** The work is basically a review article and partially a research paper. Problems for evaluation and impact of published scientific works and their authors are discussed at theoretical level. The role of citations in this process is pointed out. Different bibliometric indicators are reviewed in this connection and ways for generation of new bibliometric indices are given. The influence of different circumstances, like self-citations, number of authors, time dependence and publication types, on the evaluation and impact of scientific papers are considered. The repercussion of works citations and their content is investigated in this respect. Attention is paid also on implicit citations which are not covered by the modern bibliometrics but often are reflected in the peer reviews. Some aspects of the Web analogues of citations and new possibilities of the Internet resources in evaluating authors achievements are presented.

---

## Contents

<b>1</b>	<b>Introduction</b>	<b>70</b>
<b>2</b>	<b>When a Work is Cited?</b>	<b>72</b>
2.1	Citation in a Research Paper . . . . .	72
2.2	Citation in a Review Work . . . . .	73
2.3	Citation in a Handbook, Encyclopedia and Similar Works . . . . .	74
2.4	Citation in Textbook . . . . .	74
2.5	Self-Citations . . . . .	74
2.6	Inferences . . . . .	75
<b>3</b>	<b>Lists of Citations</b>	<b>75</b>
<b>4</b>	<b>Analysis and Forms of Citation Lists</b>	<b>77</b>
4.1	Cited Papers with Multiple Authors . . . . .	79
4.2	Citations in Papers with Multiple Authors . . . . .	81
<b>5</b>	<b>Bibliometric Indices (Metrics)</b>	<b>83</b>
5.1	The Hirsch Index . . . . .	85
		69