

# Preface

Scientists in academia are facing nowadays more and more pressure to publish their work in order to sustain in their system. The publication output may significantly influence promotion, tenure, funding, or even the renewal of contracts. This focus on publications—especially in internationally recognized journals—is even extended to students on the Master or Ph.D. level by the request of study regulations to have, for example, at least one international publication before being able to graduate. This may build up an immense pressure, especially when a thesis is written but the journal publication is still pending or missing. It should be common sense that students are only able to comply with this requirement if the academic supervisors provide the corresponding guidance and support. The discussions among administrations, scientists, and even students are enriched with many expressions and acronyms, such as ‘impact factor’, ‘ISI journal’, ‘Web of Science’, or ‘ranking’. However, it seems that sometimes the required background is missing and expressions are used without having a thorough understanding of the matter. This produces further confusion and may even lead to wrong decisions. Thus, it may be helpful to have a brief reference book which covers different topics out of the discussions related to publishing.

This book is not intended as a guide on how to write journal papers. Despite that several questions related to the writing of journal papers are covered, the major content of the book addresses issues connected with scientific, technical, and medical (STM) publishing.

**Chapter 1** briefly summarizes reason why scientists publish. Coming from the ideal motivation of sharing knowledge with their peers in order to progress science and development, up to the various new causes for reporting which seem to enter the spectrum of reasoning for publishing.

**Chapter 2** covers the topic of technical and cognitive skills in the context of scientific writing. This distinction seems to be appropriate since one group of skills can easily be introduced due to short courses, books, or lectures. However, the cognitive skills which are in fact the main requirement for success in the publishing attempts are only possible to develop—if at all—in long term.

**Chapter 3** covers the different forms of publications. Only if a scientist knows the different options in publishing, he or she may take the right decision on how to publish scientific results. Connected with the question of the existence of different

forms of publications is their assessment. Naturally, everybody likes to have his work published with the highest recognition. The question is, however, how to rank the different forms of publications according to their scientific ‘value’ and/or ‘impact’.

**Chapter 4** introduces publishing companies and the related questions on the financial coverage of the involved work in publishing articles and books. At the end of the day, someone must pay for the involved work. **Chapter 4** introduces to different business models.

**Chapter 5** covers scientific abstracting and indexing services. On the one hand, they are useful tools for scientists to search for information, while on the other hand, they play an increasingly important role in the evaluation of scientists and even entire institutions. The chapter introduces three global players, i.e., Web of Knowledge, Scopus, and Google Scholar.

**Chapter 6** introduces the statistical evaluation of bibliographical data, which are nowadays used to evaluate not only journals, but also scientists and institutions. Impact factor and Hirsch-index are defined and explained. Advantages and disadvantages in the formal calculation of these statistical performance numbers are summarized, so that it is much more obvious what such numbers can tell or not. The second part covers the evaluation of research, scientists, and universities.

**Chapter 7** highlights several aspects in the context of the preparing of journal manuscripts. Important topics such as time frame for publication, the structure of a journal paper, and appropriate formatting are discussed.

**Chapter 8** discusses ethical guidelines for STM publishing. The high pressure to publish sometimes results in unethical behavior to ‘fulfil’ the expectations and requirements set by administrations. Wrong behavior is explained and the possible consequences are described.

The final **Chap. 9** gives a few ideas and recommendations on how to publish. As in every challenge, success requires the right strategies and a gradual improvement from step to step in order to climb the publication pyramid.



<http://www.springer.com/978-3-642-38645-9>

Introduction to Scientific Publishing

Backgrounds, Concepts, Strategies

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2013, XVII, 96 p. 26 illus., 13 illus. in color., Softcover

ISBN: 978-3-642-38645-9