

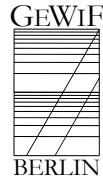
---

**Collaboration in Science and in Technology  
Proceedings of the Second Berlin Workshop  
on Scientometrics and Informetrics  
September 1 – 3, 2000**



---

Gesellschaft für  
Wissenschaftsforschung



Proceedings  
of the  
Second Berlin Workshop  
on  
Scientometrics and Informetrics

**Collaboration in Science  
and in Technology**

September 1 – 3, 2000  
at Free University Berlin



Edited by  
Frank Havemann  
Roland Wagner-Döbler  
and  
Hildrun Kretschmer

Authors:

*E. Bassecoulard • D. deB. Beaver  
H.-J. Czerwon • M. Davis  
K. Fuchs-Kittowski • L. Fuglsang  
S. Gerasimova • W. Glänzel • J. Gläser  
Y. Guo • F. Havemann • H. Kretschmer  
R. Kundra • L. Lange • G. Laudel  
L. Liang • Z. Liu • U. Matzat  
Ü. Must • Y. Okubo • R. Rousseau  
S.L. Sangam • D. Tomov  
R. Wagner-Döbler • Y. Wang  
V. Wenzel • C.S. Wilson  
Y. Wu • M. Zitt*

---

Collaboration in Science and in Technology :  
Proceedings of the Second Berlin Workshop on  
Scientometrics and Informetrics / September 1 – 3,  
2000 / Frank Havemann, Roland Wagner-Döbler,  
Hildrun Kretschmer (Editors). With Contributions  
of Elise Bassecoulard ... – Berlin : Gesellschaft für  
Wissenschaftsforschung 2001.

Das Werk ist in allen seinen  
Teilen urheberrechtlich geschützt.

Jede kommerzielle Verwertung ohne  
schriftliche Genehmigung des Verlages ist  
unzulässig. Dies gilt insbesondere für  
Vervielfältigungen, Übersetzungen,  
Mikroverfilmungen und die Einspeicherung  
und Verarbeitung in Systeme(n) der  
elektronischen Datenverarbeitung.

© Gesellschaft für Wissenschaftsforschung,  
1. Auflage 2001  
Alle Rechte vorbehalten.

Verlag:  
Gesellschaft für Wissenschaftsforschung  
c/o Prof. Dr. Walther Umstätter  
Institut für Bibliothekswissenschaft der  
Humboldt-Universität zu Berlin  
Dorotheenstr. 26  
D-10099 Berlin

ISBN 3-934682-32-4

Preis: € 15,-

---

## Contents

Preface .....	9
<i>Elise Bassecoulard</i>	
<i>Yoshiko Okubo</i>	
<i>Michel Zitt</i>	
Insights in Determinants of International Scientific Cooperation .....	13
<i>Donald deB. Beaver</i>	
Reflections on Scientific Collaboration (and its Study): Past, Present, and Future .....	29
<i>Hans-Jürgen Czerwon</i>	
Scientific Co-operation of the European Union and Economies in Transition: A Bibliometric Trend Analysis of the 90s .....	41
<i>Mari Davis</i>	
<i>Conception S. Wilson</i>	
Vision Sciences as a Collaborative Enterprise: Issues of Multidisciplinarity and Work-Interest Space .....	47
<i>Klaus Fuchs-Kittowski</i>	
Knowledge-Co-Production and Telecooperation – The Convergence of Computing, Communication and Content and the Need of Semantic Feedback .....	63
<i>Lars Fuglsang</i>	
Innovation Management and Co-operation .....	83

*Wolfgang Glänzel*

A Bibliometric Analysis of Co-authorship Patterns  
of Eleven East Central European Countries in the 90s ..... 93

*Frank Havemann*

Collaboration Behaviour of Berlin Life Science Researchers  
in the Last Two Decades of the Twentieth Century  
as reflected in the Science Citation Index ..... 97

*Hiltrun Kretschmer*

*Liang Liming*

*Ramesh Kundra*

Collaboration in Science and in Technology:  
Foundation of a Global Interdisciplinary Research Network  
(COLLNET) with Berlin as the Virtual Centre ..... 107

*Hiltrun Kretschmer*

*Liang Liming*

*Ramesh Kundra*

Chinese-Indian-German Collaboration Results that  
Provided the Impetus for the Foundation of COLLNET .... 113

*Ramesh Kundra*

*Dimitar Tomov*

Types of Collaboration of Indian and Bulgarian Research  
in Epidemiology of Neoplasms  
in MEDLINE for 1966 – 1999 ..... 119

*Lydia L. Lange*

Primary-Author Citation Indexing:  
Source of Distortion for Citation Analyses? ..... 128

*Grit Laudel*

*Jochen Gläser*

Outsiders, Peers and Stars: Analysing Scientists' Integration  
into Scientific Communities with Scientometric Indicators . . . 129

*Liang Liming*

*Hiltrun Kretschmer*

*Guo Yongzheng*

*Donald deB. Beaver*

Age Structure of Two-dimensional and Three-dimensional  
Research Collaboration in Chinese Computer Science . . . . . 143

*Liu Zeyuan*

Eastern Contributions to Long-Wave Theory . . . . . 155

*Uwe Matzat*

Academic Communication and Internet Discussion Groups:  
Transfer of Information, Creation of  
Social Contacts, and Disciplinary Differences . . . . . 161

*Ülle Must*

Cooperation of Estonian Research Institutions:  
Comparative Study of Co-authorship and Co-partnership . . . 163

*Ronald Rousseau*

Are Multi-Authored Articles Cited More than  
Single-Authored Ones? Are Collaborations with  
Authors from Other Countries More Cited than  
Collaborations within the Country? A Case Study . . . . . 173

*Shivappa L. Sangam*

Collaborative Research in Psychology in India:  
A Scientometric Study . . . . . 177

*Dimitar T. Tomov*

*Sevdalina Gerasimova*

Computerized Historiography of Interdisciplinary

Collaboration in Memory Research ..... 185

*Roland Wagner-Döbler*

Continuity and Discontinuity of Collaboration Behaviour

since 1800 – From a Bibliometric Point of View ..... 197

*Wang Yan*

*Wu Yishan*

Status and Trend of Scientific and Technical Collaboration  
between People's Republic of China and Commonwealth

of Australia: An Analysis of Scientific and Technical Papers

Co-authored by Chinese and Australian ..... 211

*Vera Wenzel*

Complex Systems in Natural Science and Humanities ..... 219

Authors of Papers in this Book ..... 225

List of Workshop Papers ..... 229

International Program Committee ..... 233

Local Organising Committee ..... 233



## Preface

The Second Berlin Workshop on Scientometrics and Informetrics „Collaboration in Science and in Technology“ was held at the Free University of Berlin on September 1. – 3., 2000. It was followed by the First COLLNET Meeting on September 4<sup>th</sup> with overall 61 participants from 17 countries. The Second Berlin Workshop was a continuation of the First Berlin Workshop on Scientometrics and Informetrics „Collaboration in Science“ which was held in August 1998 at the Institute for Library Science of the Humboldt University of Berlin<sup>1</sup> and organised by the Association for Science Studies<sup>2</sup>. Details of the Second Berlin Workshop (Program, Abstracts) and of COLLNET (members, projects, publications) can be found in the Internet under <http://www.collnet.de>.

Why put on a special conference on “Collaboration in Science and in Technology”?

An increase in national and international cooperation in science and in technology – linked to an increasing necessity to investigate that process – was already reflected in the previous years in the International Conferences on Scientometrics and Informetrics. Eight years ago only a handful of scientists participating in the 4th International Conference on Scientometrics and Informetrics in Berlin 1993 dealt with the subject. As a result no session was organised on „Collaboration“ or „Cooperation“. Its growing importance became increasingly visible at the next international conferences in Chicago 1995, Jerusalem 1997, and Colima (Mexico) 1999.

As a consequence, informal discussion groups came together more often at international conferences to consider topics of cooperation. The time had therefore come to organise special conferences and at the same time to found a global interdisciplinary research network focussed on „Collaboration in Science and in Technology“: COLLNET. It now comprises about 50 members from 20 coun-

1. Institut für Bibliothekswissenschaft der Humboldt-Universität zu Berlin (see also web page at <http://www.ib.hu-berlin.de>).
2. Gesellschaft für Wissenschaftsforschung, Berlin (<http://www.wissenschaftsforschung.de>)

tries. The members intend firstly to investigate cooperative processes in order to gain scientific insights into the organisation of research and development and also to generate possible applications for research and technology policy. Cooperation is not only a matter of research, however, but also of the actual practice of members.

More than 35 of the COLLNET members took part in both the Second Berlin Workshop and the First COLLNET Meeting. Their educational backgrounds range from mathematics, physics, chemistry, biology, medicine, to science history, social sciences, and psychology. Among them are directors of large science sponsoring or science consulting institutions, e.g., the National Institute for Science, Technology and Development Studies (NISTADS), New Delhi, as well as organisers of the International Conferences on Scientometrics und Informetrics, board members of the International Society for Scientometrics and Informetrics (ISSI) and of the German Society for Psychology<sup>3</sup>, and members of the Editorial Board of the international journal *Scientometrics*.

The Second COLLNET Meeting was held in February 2001 at the National Institute of Science, Technology and Development Studies (NISTADS) in New Delhi, which followed the international workshop on „Emerging Trends in Science & Technology Indicators: Aspects of Collaboration“. The Third COLLNET Meeting was held in connection with the 8th International Conference on Scientometrics and Informetrics in July 2001 in Sydney.

During the Second Berlin Workshop the discussion on interdisciplinary and intercultural aspects of collaboration led to the decision to go beyond quantitative research to include perspectives related to qualitative research in order to strengthen the interdisciplinary character of COLLNET.

Against the background of different, sometimes conflicting methodological cultures of the members, the discussions between „quantitative“ and „qualitative“ scientists and technology experts can be characterised as constructive and fruitful. We hope that the Workshops as well as the COLLNET Meetings will stimulate common projects and publications – that is presuming that the conferences can be continued.

At the Second Berlin Workshop 44 contributions were presented, some of them as posters. The workshop organisers had offered all contributors two options: to submit the paper to a special issue of *Scientometrics* or – if they felt that it does not fit into the profile of *Scientometrics* – they could contribute the paper – or a more or less extended abstract of it – to this book. Some papers, which are included in the *Scientometrics* issue, will also appear in the book.

3. Deutsche Gesellschaft für Psychologie

Neither the Workshop nor the COLLNET Meeting would have been a success without the support of the following institutions which we are indebted to:

- Freie Universität Berlin,
- Deutsche Forschungsgemeinschaft (Bonn),
- Eugene Garfield Foundation (Philadelphia, USA),
- ALTUS Analytics AG (Berlin),
- Gesellschaft für Wissenschaftsforschung e.V., Berlin, and,
- Town of Hohen Neuendorf.

Berlin and Munich, August 2001

The editors.