

Bibliometric Research of International Scientific Conferences Proceedings in the Context of the Current Objectives of Library and Information Service

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ABSTRACT. The possibilities of the applications of the structure of bibliographical references in the proceedings of international scientific conferences for the management of information and library service are under discussion. On behalf of such research branches that do not have any specialized periodicals and which researchers are involved in other branches, too, it is demonstrated that the international scientific conference proceedings could be the only reliable source of references that ade-

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quately represent such branches and could be used for corresponding bibliometric studies. The results of the studies of disciplinary, chronological and species structures of references cited in the proceedings of the conferences in magnetic fluids and in bone marrow purging and processing are featured and discussed. Some results of detailed citation study of the citedness of particular authors are also presented. It is shown that the practice of taking into account the citation figures referring to only the first co-authors destroys the real picture of impact of individuals (in contrast to what *Ferreiro, Ortega & Lara* tried to demonstrate in 1977). The basic conclusion: there is a need in the bibliographical index of the proceedings of international scientific conferences of the citation index type. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: <getinfo@haworthpressinc.com> Website: <<http://www.HaworthPress.com>> © 2001 by The Haworth Press, Inc. All rights reserved.]

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INTRODUCTION

Various data on the structure of bibliographical references cited in specifically restricted groups of sources (certain periodicals, books, articles written by separate authors, etc.) are widely used in scientometric research. As for the applications of the results of such studies in the practice of library management, only the data on citedness of periodicals in some specialized journals are commonly used in some specialized libraries for the selection and quantitative evaluation of subscriptions to the world's periodicals.

However, there are papers describing the practical usefulness of some other data on structure of bibliographic references in the practice of library and information services. For example, *Kozlyakovski* [1] and *Komlev* [2] think that the data on disciplinary structure of cited references are helpful for determining the interdisciplinary information needs of the users of scientific literature. *Neely, Jr.* [3] states that such

data are helpful for searching the practice of the management of scientific literature. *Karas and Lazarev* [4] are of the opinion that some of the data of disciplinary structure of references may be used in searching for databases in which specialization has nothing *formally* in common with the potential users, but which are necessary sources of information to them for supporting their interdisciplinary research. Such data may be also used to search for the “non-evident” scientific disciplines, in which representatives may be potential users of the new information products that are to be transacted from the discipline of its origin [4-6].

The data on chronological structure of cited references, their species structure and other characteristics might also be helpful in the practice of library and information service (e.g., [7;8]). The *Science Citation Index* (SCI) is widely used as a source of such information in a semi-ready format.

There is a lot of criticism of the *Science Citation Index* (e.g., [9]). Though many of its demerits are over-estimated (due to some kind of emotional rigorism of mainly those who tried to make use of it for evaluation of their own “impact in science,” which is not, in fact, the primary target of the application of this bibliometric tool [10]), the *Science Citation Index* is really not a good source of data in some specific cases. Such cases concern the use of citation analysis for improving the information service in the branches and sub-branches of science that do not have any specialized journals and whose representatives are also involved in the research fulfilled under the framework of some other disciplines: neither an author nor a journal (citation data on both being reflected in SCI) is able to represent such a branch [11]. Such research areas are (usually) relatively new, having arisen at the juncture of several scientific disciplines.

It is understandable that only *de visu* selection of citations will do in such cases. But what would a bibliometrician choose as a source that represents such a branch, the source that ought to be both formally restricted and rather compact? Enormously large and not distinctly restricted sources would make a study impossible, while if a sub-branch is represented by such a source in a vague manner, the research is of no value.

Our “remedy proposal” is the use of the international scientific conferences (symposia, etc.) proceedings, provided that the conferences are regularly held, are of one and the same status, and reflect the results of studies fulfilled throughout the world.

Generally, proceedings of the international scientific conferences (ICP) seem to be one of the steadiest sources of references under study,

and it is believed that they reflect the results that are obtained [12]. Since scientific conferences are usually “the first occasion of communicating scientific finding” [13, p. 237] such an approach seems to be good for following up the research branch development at the earliest points of time after findings have been obtained. As the corresponding indexes of international conferences proceedings are not of the citation-index nature, the *de visu* analysis is the only way—but the quantity of citations is restricted. This makes it possible for a bibliometrician to undertake a most detailed, polyfactor analysis.

Among the research completed by our team with the use of citation analysis of ICP there is a comparative bibliometric study of the Proceedings of the 5th and the 6th International Conferences on Magnetic Fluids (ICMF-5 and ICMF-6). Magnetic fluids is a research branch that has a lot of specific features. For example, on one hand, it is a very much interdisciplinary one (as it has appeared at the juncture of chemistry, physics, mechanics and material sciences). There is “a rich heritage that underlines the topic of magnetic fluids, representing as it does a unique confluence of the disciplines of electromagnetism *and* hydrodynamics concerning a complex fluid of interest to colloid science. New combinations of old, unrelated subjects often excite the interest of scientists from the separate disciplines and beyond,” etc. [14, p. 2]. On the other hand, the domain of the specialists in magnetic fluids is compact, and it is remarkable that this research field is still being called in the same manner as its subject. The latter is not the sign of a “scientific maturity,” but, again, it is known how plentiful the practical applications of magnetic fluids are [15]!¹ Therefore, magnetic fluids (MF) is an exiting subject for a bibliometric study.

The first portion of the study was published in [16]. The results referring to the structure of the references cited in the ICMF-6 are plotted in the present paper at first.²

CASE STUDY

Objectives and Methods

Regarding the lists of the literature cited in the ICMF-5 and ICMF-6 Proceedings as the “reflector” and of the “extract” of the *cognitive basis* of the findings and conceptions in the field of MF, and of the impact of cited personalities in the research branch development, we aimed at the

“deciphering” of these notions (contained in the Proceedings in the latent form).

Cognitive basis is the complex of scientific facts, theories and methods taken into account by the authors of *citing* papers that are reflected in the “ciphered form” in the structure of *cited* bibliographical references [8], because the act of citation confirms the active use of a cited material [18]. Cognitive basis of scientific documents is believed to be one of the most important determinants of their potential scientific value [4;6], and, therefore, the comparison of its magnitudes—from one ICP to another—enables one to assess roughly the trends of scientific development of a branch under study [12]. (Correspondingly, being aware about such changes is helpful for a librarian and/or information broker.) The following characteristics of references were chosen as principal characteristics of cognitive basis: an average number of references in a paper from the collection (in our case—from ICP) [8]; disciplinary structure of references (since it is believed that the most prospective results and new trends arise, as a rule, at the junction of scientific branches [4; 12]), and the “age structure” of references (since it is believed that a prevalence of old references mean that the citing authors are behind the “research front”) [8; 19; 20]. Knowing the disciplinary and chronological structure of cited (i.e., used) references is by no means helpful for the management of library and information service. Also, the species structure of references was studied.

The estimation of an average number of references in a paper, of the “age structure” and species structure of references is a most simple procedure that is not worth being described. As for the discipline structure of references, it was determined only for those cited papers that were published in periodicals (which are the major—74.23 % for the ICMF-5 and 74.20% for the ICMF-6 Proceedings—and the most important part of all cited papers³). The special headings of “subject categories” presented in the *Science Citation Index* (one of the most popular headings in the world) were used for this purpose. In cases where the specialization of cited periodicals was not identifiable with the aid of the *Science Citation Index*, their specialization was determined either according to the *Ulrich’s International Periodical Directory* or the authors’ knowledge. Only a few periodicals were excluded from the further processing for having non-identifiable titles cited in the proceedings. They comprised 6.61% of all the citations to periodicals presented in the Proceedings of the ICMF-6. For the citations to the periodicals in the ICMF-5 Proceedings such losses were even smaller. On the other hand, it is noticeable that, according to *SCI* headings, some periodicals are re-

lated to more than one discipline. In these cases the citations were calculated as many times as disciplines they were related to.

Impact of cited personalities. The level of personal citations is believed to be an indicator of the researchers impact in the development of a branch represented by the sources of references, since citations documented reflect the active use of the works of cited authors by citing authors [18].

Most often the usual practice in studies made of citations to particular authors is to take into account only the first co-author, thereby potentially underestimating a contribution of the other co-author. The practice of SCI to present the citedness data only referring to the *first* co-author of cited documents leads some of our colleagues to the uncritical practice of using such data without further calculations of the impact of co-authors. Moreover, the findings of *Ferreiro, Ortega & Lara* (referring to the chemical literature) [23] seemed to be quite persuasive that there is no serious underestimation of co-authors contribution in this case.

The reason we undertook the study of citation levels of individuals was a wish to evaluate the scope of the losses in the results of studies when they are fulfilled following the more usual practice. So, in this study each cited author was taken into account independently as a separate reference. The citation indices of the authors cited three or more times were estimated, and the percent expression was calculated from the sum of citations to the authors (more than a half of personal references in both cases). Aiming to exclude the possible confusion factor of self-references, the citation level was calculated both including and excluding self-references; and the following indices were used in this study:

R: number of references (without self-references) reflecting a level of total use of an author's findings;

D: number of papers containing the references to a given author (without self-references) reflecting the "scope" of the influence of an author's results and ideas;

R : number of references (without self-references) to a given author when he is the first co-author or the only author of a cited paper (a more usual way of such studies);

Rs: number of references with the self-references;

Ds: almost the same as *D*, but including self-references;

R s: almost the same as *R*, but including self-references.

Results and Discussion

Cognitive basis. The mean number of references in a paper published in the ICMF-5 Proceedings is 9.13, whereas in the Proceedings of the ICMF-6 the mean is 8.32. The latter looks a bit worse, and both the magnitudes are a bit less than the minimum value of reference “quota” for non-humanities (10), calculated by *Price* long ago [24]. The reduction of the magnitude might mean that MF researchers reduced the number of the literature items used in their creative work. It is interesting to note that in an average invited paper, published in the Proceedings of ICMF-5, the mean number of references is 19.00, and, if we believe that the invited papers are really of more potential value than contributed ones, as well as it is believed that the greater number of references in an average citing paper from a collection (within a “quota” of 10-22 references [24]) means that a collection is of greater potential value [8; 12], so this finding indirectly supports the initial assumption. The corresponding data for the structure of references cited in the Proceedings of the 2nd and the 3rd Symposia on Bone Marrow Purging and Processing (held in the same years as the ICMF-5 and ICMF-6) taken for the comparison were 16.95 and 9.93 references per paper in average [25].

If we pay more attention to the structure of citations in the Proceedings papers devoted *only* to the *biomedical applications of magnetic fluids*, the corresponding number of references per article would be 9.60 (ICMF-5) and 10.46 (ICMF-6), i.e., a certain increase takes place. This might be an evidence of a certain progress in the sub-branch, and our late friend *Stuart Roath* who was a world-recognized expert in magnetic fluids biomedical applications did believe in it [26].

The number of disciplines presented by the cited periodicals has increased from 30 (which is, in itself, an unusually large number of disciplines cited in such a compact domain as magnetic fluids researchers) up to 44 (the increase is 46.69%). Such an increase is most usually interpreted as evidence of the increased use of knowledge generated in disciplines other than a research branch under study, while an increased use of such “interdisciplinary information” is believed to be a very strong determinant of the scientific value of the results being obtained in a research branch under study. In any case—even if we do not interpret these results straightforwardly—the broadening of the thematic scope of the scientific information being consumed in the branch is an evident sign of the progress of scientific development. The challenge for information brokers is obvious! (The lists of the “cited disciplines” are featured in Table 1. The separate groupings of data plotted in Table 2 demon-

TABLE 1. The Disciplinary Structure of References in the Proceedings of ICMF-5 and ICMF-6

The discipline presented by the discipline of cited periodicals	The quantity of bibliographic citations in the Proceedings of						
	ICMF-5			and	ICMF-6		
	a	%	r ¹	a	%	r	
Mechanics	122	26.49	1	83	14.09	2	
[<i>"Physics" group, including:</i>]	182	39.48		190	32.26		
Physics	81	17.57	2	107	18.17	1	
Physics, Applied	64	13.88	3	47	7.98	4	
Physics, Fluids & Plasmas	13	2.82	7	1	0.17	34	
Physics, Condensed Matter	12	2.60	9	13	2.21	11	
Physics, Atomic, Molecular & Chemical	11	2.38	10	18	3.06	8	
Physics, Mathematical	1	0.22	23	4	0.70	20	
[<i>"Material Sciences" group including:</i>]	57	12.36		74	12.56		
Material Science	57	12.36	4	73	12.56	3	
Material Science, Ceramics	1	0.17	34				
[<i>"Chemistry" group, including:</i>]	40	8.68		45	7.64		
Chemistry, Physical	30	6.51	6	35	5.94	6	
Chemistry	4	0.87	13	7	1.19	14	
Chemistry, Applied	3	0.65	14				
Chemistry, Inorganic & Nuclear	1	0.22	23	2	0.34	26	
Chemistry, Analytical				1	0.17	43	
[<i>"Engineering" group, including:</i>]	20	4.35		79	13.41		
Engineering, Mechanical	13	2.82	7	35	5.94	6	
Engineering, Chemical	5	1.05	11	7	1.19	14	
Engineering	1	0.22	23				
Engineering, Electrical & Electronic	1	0.22	23	41	6.96	5	
[<i>"Biology and Medical Sciences" group including:</i>]	13	2.82		76	12.90		
Biophysics	5	1.05	11	10	1.70	13	
Cardiovascular System	2	0.43	17	6	1.02	16	
Hematology	2	0.43	17	4	0.70	20	
Immunology	2	0.43	17	15	2.55	9	
Gastroenterology	1	0.22	23				
Medicine, General & Internal	1	0.22	23				
Biochemistry & Molecular Biology				2	0.34	6	
Radiology & Nuclear Medicine				14	2.38	10	
Cytology & Histology				5	0.85	18	
Oncology				4	0.70	20	
Medicine, Research & Experimental				4	0.70	20	
Biology				3	0.51	24	

The discipline presented by the discipline of cited periodicals	The quantity of bibliographic citations in the Proceedings of						
	ICMF-5			and	ICMF-6		
	a	%	r ¹	a	%	r	
Pharmacology & Pharmacy				2	0.34	26	
Biology, Miscellaneous				2	0.34	26	
Microbiology				1	0.17	34	
Pediatrics				1	0.17	34	
Physiology				1	0.17	34	
Surgery				1	0.17	34	
Multidisciplinary periodicals	14	3.04	6	12	2.04	12	
Acoustics	3	0.65	14				
Crystallography	3	0.65	14	3	0.51	24	
Mathematics	2	0.43	17	2	0.34	26	
Mathematics, Applied				1	0.17	34	
Instruments & Instrumentation	2	0.43	17				
Aerospace Engineering & Technology	1	0.22	23	2	0.34	26	
Optics	1	0.22	23	6	1.02	16	
Technology: Comprehensive Work ²	1	0.22	23				
Polymer Sciences				5	0.85	18	
Energy & Fuels				2	0.34	26	
Geosciences				2	0.34	26	
Computer Applications & Cybernetics				1	0.17	34	
Metallurgy & Mining				1	0.17	34	
Meteorology & Atmosphere Science				1	0.17	34	
Photographic Technology				1	0.17	34	
Total disciplinary citations	461			589			

¹"a" is an absolute value of the index, "%" is its percent expression, "r" is the rank of the index value; blank means the absence of citations to the disciplinary periodicals in one of the studied proceedings. (These signs are used in the further tables, also.)

²The only discipline name that was taken from the Ulrich's Periodical International Directory since no directly corresponding name in the Science Citation Index was found.

strate the most prominent increase in the field of *biomedical applications of MF*. And there is also a mighty increase in number of cited biomedical disciplines as we can see from the Table 1.) The corresponding data for the structure of references cited in the Proceedings of the 2nd and the 3rd Symposia on Bone Marrow Purging and Processing are 32 and 24 disciplines [25].

Concerning the chronological structure of references, comparison in the ICMF-5 and ICMF-6 Proceedings leads us to a bit more pessimistic conclusion: if the average age of a reference cited in the first compendium is 7.27 years (for invited papers) and 10.48 (for contributed ones),

TABLE 2. The Grouped Data on Major Disciplines Citation Level in the Proceedings of the ICMF-5 and ICMF-6

The discipline group or major disciplines presented by cited periodicals	The quantity of bibliographic citations in the Proceedings of ICMF-5 & ICMF-6						Relative increase (+) or decrease (-)
	ICMF-5		ICMF-6		ICMF-5 & ICMF-6		
	a	%	r	a	%	r	
"Physics" group	189	39.48	1	190	32.26	1	-18.29%
Mechanics discipline	122	26.46	2	83	14.09	2	-46.75%
"Material Sciences" group	57	12.36	3	74	12.56	5	+1.62%
"Chemistry" group	40	8.68	4	45	7.64	6	-11.98%
"Engineering" group	20	4.83	5	79	13.41	3	+208.97%
"Biology & Medical Sciences" group	13	2.87	6	76	12.90	4	+349.48%

the average "age" of a reference cited in the ICMF-6 Proceedings is already 12.49 years. Whereas the "aging" of the information might mean that a cumulative function of newly published papers became less useful, or just that the researchers make less use of the "fresh" literature. The corresponding data for the structure of references cited in the Proceedings of the 2nd and the 3rd Symposia on Bone Marrow Purging and Processing are 4.63 and 6.23 years [25]. This research branch is "younger" than the magnetic fluids one, and, therefore, it is not so easy to use much of the literature published really long ago.

If we compare the "age structure" of references in the invited and contributed papers, believing that the collections of papers that cite more "fresh" literature are of more potential value [8; 20], we shall see that the "age structure" of references in invited papers (that *are* considered *a priori* as potentially more valuable) demonstrates that the cited literature is generally fresher than the literature cited in contributed papers.

Chronological structure of references cited in the ICMF-5 and ICMF-6 publications of biomedical applications of magnetic fluids is 7.12 and 9.38. So, the structure of the used literature "grew older" in this case, too, but to a lesser extent than in the whole MF research branch.

The species structure of references (plotted in Table 3) shows, first of all, the stability of a part of citations to periodicals, which is a symptom, when it is not less than 70 and not higher than 80 per cent, of a normal development of a research branch [21; 22]. The increase in references to monographs, handbooks, manuals (relative increase 57.73%) and theses (relative increase 46.90%) reflect, in our mind, the increasing attention to generalized works. The decrease in references to the descriptions

TABLE 3. The Species Structure of References in the Proceedings of the ICMF-5 and ICMF-6

The species of cited scientific documents	The quantity of bibliographic citations in the Proceedings of ICMF-5 and ICMF-6					
	a	%	r	a	%	r
journal articles	161	74.23	1	627	74.20	1
collection papers (both abstracts and full papers collections)	65	10.47	2	63	7.46	3
monographs, handbooks, manuals	41	6.60	3	88	10.41	2
descriptions of inventions	25	4.03	4	23	2.72	4
theses	9	1.58	5	18	2.13	5
unpublished	4	0.63	7	15	1.78	6
catalogues	1	0.16	8			
private communications	1	0.16	8			
R&D reports				5	0.59	8
rest and unclassified	15	1.42	6	6	0.71	7

of inventions (relative decrease 32.51%) may be interpreted as the reducing of researchers' attention to the developments and applied studies. (Information brokers should be more active in promotion of patent descriptions?) However, this conclusion is doubtful, because of some of the above reported results of the disciplinary structure of references and, also, because of the increase in the number of citations to generalized works that may cumulate knowledge.

It is not ethical to publish the entire compendium of the data on the citation levels of individuals—unless members of the magnetic fluids domain approve such practice. However, some of the results are worth mentioning.⁴ For example, in the citation level in the ICMF-5 Proceedings, it is easy to see that for some authors (e.g., A. F. Pshenichnikov, R. E. Rosensweig, A. O. Cebers) an account of only the first author names does not distort the general picture of their contribution, but for others (K. Koike, P. Perzinski, D. Salin) the usual tradition of counting only the first co-authors citation levels completely overlooks their contribution. Moreover, Professors D. Salin and R. Perzinsky, who are *among* the citation leaders in the Proceedings, would be *never* identified *at all* using the routine approach since they were not first co-authors in their cited papers. (As two of us are workers in the Belarusian Polytechnic Academy, we are pleased to note that Professor Victor Bashtovoi, who works at the same Academy, has high ranks of citation levels: i.e., the 8th rank according to the citations in ICMF-5 Proceedings and—though “only” the

15th rank according to the reference-lists of the Proceedings of the ICMF-6—in the ICMF-6 Proceedings he had just one citation less.) The misleading impact of self-citations is, in some cases, also very high (we shall just mention that one of the ICMF-6 Proceedings authors cited himself 17 times, but was never cited by anybody else). These conclusions might seem obvious for the *users* of bibliometric service, but, unfortunately, not to some of the bibliometricans themselves. Table 4 contains some data on the ICMF-5 and ICMF-6 citation leaders in terms of the number of references—without self-citations and irrespectively if the cited author was the first co-author or not.

At the end of this discussion it should be stressed that citation process is a stochastic process. So, though considering our study as unbiased, we must understand that too much straightforward interpretation of its results might cause—due to the stochastic nature of citation process—another kind of a bias. This especially refers to the indices of individual citations, because of both the relatively small sampling and a certain degree of prejudice about the selection of a paper (out of the ones that were equally used and valued) for citation [10].

TABLE 4. Citation Leaders in the Proceedings of the Both Conferences

Family name	Country of origin	Which Conference Leader	Citation level (R-index) in the Proceedings of and					
			ICMF-5			ICMF-6		
			a	%	r	a	%	r
Rosensweig	(USA)	both	24	5.63	1	30	4.37	1
Shliomis	(Russia)	both	14	3.28	2	17	2.47	7
Glazov	(Russia)	ICMF-5	12	2.81	3	0	0	
Bica	(Romania)	ICMF-5	11	2.58	4	0	0	
Raikher	(Russia)	ICMF-5	11	2.58	4	6	0.87	26
Pshenichnikov	(Russia)	ICMF-5	10	2.34	6	6	0.87	26
Cebers	(Latvia)	ICMF-5	9	2.11	7	5	0.72	37
Potenz	(Romania)	ICMF-5	9	2.11	0	0		
Bashtovoi	(Belarus)	ICMF-5	9	2.11	7	8	1.16	15
Bacri	(France)	both	8	1.87	10	23	3.35	4
Charles	(UK)	both	8	1.87	10	19	2.77	6
Popplewell	(UK)	both	8	1.87	10	16	2.33	8
Salin	(France)	both	8	1.87	10	23	3.35	4
Skejltrap	(Norway)	ICMF-5	8	1.87	10	6	0.87	26
Massart	(France)	ICMF-6	3	0.70	53	25	3.64	2
Chantrell	(UK)	ICMF-6	5	1.17	28	24	3.50	3
O.Grady	(UK)	ICMF-6	2	0.74	74	15	2.16	9
Perzinski	(France)	ICMF-6	6	1.40	18	13	1.89	10

Conclusions to the Case Study

We think that our results show that the magnetic fluids domain seemed to reduce slightly the quantity of literature items used in the creative work and enlarged the part of older literature to be used. Nevertheless, the domain expanded the thematic scope of the used literature and made a greater use of generalizing, summarizing documents. New names of the citation leaders that have appeared in the ICMF-6 Proceedings seem to be a symptom of normal creative development of the research branch. The biomedical sub-branch seems to have developed especially successfully.

CONCLUDING REMARKS

Passing to the applicability of the results to the practice of library and information service, we must admit first that we are aware of the skeptical attitude about the *practical applicability* of bibliometric results in the emerging era of electronic information access. For example, it is widely considered that Internet possibilities and the wide use of CD-ROMs reduce much of the need for bibliometric explorations. The dying off of scientific journals is also foreseen [27] and the conclusion is being given that the dissemination of electronic papers (instead of the papers published in periodicals)—not synchronized and regulated by a journal format of presentation—will make bibliometricians “definitely stand on the quicksand of change” and, possibly, perish [27]. A lot of other arguments are put forward. We are neither going to discuss them, nor disprove: our opinion is that the crisis in bibliometrics does exist, but it is caused by quite different reasons—not so much by the appearance of new tools of information retrieval, as by the absence of fresh ideas.

What seem to be obvious conclusions from the whole paper that refer to the practice of information service itself? We think that three things are of no doubt:

1. The bibliometric studies of ICP may be useful in searching for ways to perfect information service for the researchers involved in small and relatively new branches of science.
2. The practice of counting only the first co-authors of the cited items is really most misleading.
3. It is necessary to establish the ICP-index of a citation-index type.

NOTES

1. What are magnetic fluids themselves? "It is a fact that only solids that are strongly magnetic are found in nature, not fluids. The strongly magnetic fluids < . . . > are colloids, most often produced by chemical synthesis. The fluid consists of tiny particles of magnetic *solids* stably dispersed in a liquid carrier < . . . >. The particles of magnetite are prevented from sticking to each other by a molecular layer of soap or detergent that coats the surface. In this respect the stabilization of magnetic fluids has much in common with the technologies of inks, paint and detergents, all of which rely on molecular surface layer to suspend tiny particles in one liquid to another" [14, p. 3].

2. Some small fragments might be found in the conference abstract [17].

3. 70 or a bit more per cent is almost a "quota" of the portion of such references practically for all non-humanities [21; 22].

4. A bit more complete sampling concerning only citations in the ICMF-5 was published in [16]. In the cited paper the meanings of all the "R" and "D" indices mentioned in the chapter "Objectives and Methods" were featured for a certain sampling of the authors (but *not* for all the authors—though we had such data).

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