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## **ANALYSIS OF THE REFERENTIAL JOURNALS WITH IMPACT FACTOR FROM SERBIA AND UKRAINE**

Science seeks to understand how nature behaves by observing and correlating available factual information. Our understanding of science is therefore based upon, and limited by, the factual information available. In order to distinguish qualitative and credible research from plagiarism and "quantitative" ones an impact factor (IF) was introduced so the readers have pre-assured information on research quality presented to them. In this paper, an analysis of referential journals with impact factor from Serbia and Ukraine for the period 2001-2010 is given.

Keywords: referential journal, impact factor (IF), journal impact factor (JIF), education.

### **1. INTRODUCTION**

Well known old adage says "It doesn't matter how high you jumped, but how much they measured". It is similar in science, "No matter how much you contributed to science, but how much they rated". In a world scale, one of the most significant contributions to science, and a main source of scientific information and means of scientific communication, are publications in reference journals indexed in known citation databases in the world. Further in the paper, there is an attempt to explain the manner of determining the journal impact factor, information about the number of journals from Serbia and Ukraine.

JIF (*Journal Impact Factor*) is a numerical value which determines journals impact factor, which is offered in serial publication JCR (Journal Citation Report) by ISI (now Thomson Scientific) institute. Based on JIF factor, grade and assessment are determined, and by that also the categorization, rank and journal quality. It is determined for every year in the beginning of next year, as an average number of citations which a journal achieves in ISI institute databases (SCI, SCI-E, SSCI, A&HCI), in course of one year, for papers published in the last two years (equation and Figure 1).

$$JIF_{2010} = \frac{A}{B} \quad (1)$$

where: A – the number of times articles published in 2008 and 2009 were cited by indexed journals during 2010 and B – the total number of "citable items"

published by that journal in 2008 and 2009 ("Citable items" are usually articles, reviews, proceedings, or notes; not editorials or Letters-to-the-Editor.)

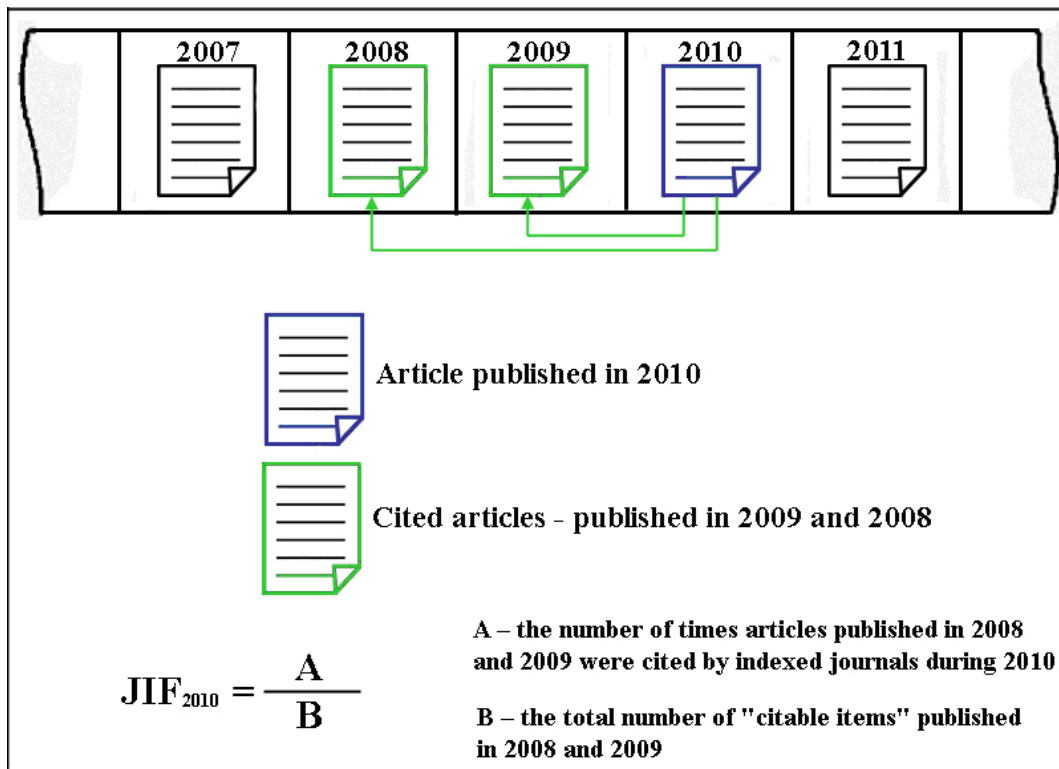


Figure 1 – Graphic display of determining journal impact factor [8, 9]

Information on journal impact factor can be found in citation databases for different areas of science which are led by Thomson Scientific Institute, such as [6-11]:

- ✓ SCI (Science Citation Index),
- ✓ SCI-E (Science Citation Index, *Expanded*),
- ✓ SSCI (Social Sciences Citation Index) and
- ✓ A&HCI (Arts & Humanities Citation Index).

Information is published in the annual Thomson Scientific Institute publications on CD-ROM or via the Internet in:

- ✓ JCR (Journal Citation Report),
- ✓ WoS (*Web of Science*).
- ✓ In the world there exist many different citation databases, such as:
- ✓ Scopus (EU),
- ✓ ProQuest CSA (SAD),
- ✓ VINITI (Russia),
- ✓ Index-Copernicus (Poland),
- ✓ IEEE Explore (USA),
- ✓ Directory of Open Access Journals (DOAJ),

✓ SCIndeks (Serbia) etc.

New journals, which are indexed from their first published issue, will receive an impact factor after two years of indexing; in this case, the citations to the year prior to Volume 1, and the number of articles published in the year prior to Volume 1 are known as zero values. Journals that are indexed starting with a volume other than the first volume will not get an impact factor until they have been indexed for three years. Annuals and other irregular publications sometimes publish no items in a particular year, affecting the count. The impact factor relates to a specific time period; it is possible to calculate it for any desired period, and the *Journal Citation Reports* (JCR) also includes a 5-year impact factor. The JCR shows rankings of journals by impact factor, if desired by discipline [12-13].

In JCR issue for 2010 journal impact factor was calculated for 10.196 science and social science journals (8.005 in SCI-E edition and 2.678 in SSCI edition, 487 journals was classified in both editions). It was total 49.000.000 references processed, which come from papers in journals and proceedings published in 2010. In JCR issue for 2010, 1.075 journals got their first impact factor (among them 8 journals from Serbia) [14-18].

## **2. INFORMATION ABOUT THE OF JOURNALS WITH IMPACT FACTOR FROM SERBIA**

From over 500 scientific-technical journals which are published in Serbia from 2004, only three had impact factor, in 2005 four journals had impact factor, in 2009 ten journals had impact factor and in 2010 eighteen journals had impact factor. Which means that in 2010 eight journal got their impact factor. Table 1 provides an overview of the journal from SCI-E lists from Serbia, with journal name, ISSN number and Web site on which a particular journal is available. And in table 2 are given the data on journal impact factor for the period 2001-2010 [9]. On figure 3 if graphically displayed journal rank according to impact factor for 2010 from Serbia. Based on Figure 3 we can see that the journal "MATCH: Communications in Mathematical and in Computer Chemistry," published by the Faculty of Science, Kragujevac has the greatest impact factor in 2010 of 3.291, and journal "International Journal of Electrochemical Science," published by the University of Belgrade, Technical Faculty from Bor, has impact factor for 2010 of 2.808, etc.

Table 1 – Tabular presentation journals with SCI listing from Serbia

No.	Journal name	ISSN	Web site
1.	Acta Veterinaria - Beograd	0567-8315	<a href="http://www.vet.bg.ac.rs/~acta/">http://www.vet.bg.ac.rs/~acta/</a>
2.	Applicable Analysis and Discrete Mathematics (AADM)	1452-8630	<a href="http://pefmath.etf.rs/">http://pefmath.etf.rs/</a>
3.	Archives of Biological Sciences	0354-4664	<a href="http://archonline.bio.bg.ac.rs/">http://archonline.bio.bg.ac.rs/</a>
4.	Chemical Industry and Chemical Engineering Quarterly (CI&CEQ)	1451-9372	<a href="http://www.ache.org.rs/CICEQ/CI&amp;CEQ.html">http://www.ache.org.rs/CICEQ/CI&amp;CEQ.html</a>
5.	Computer Science and Information Systems (ComSIS)	1820-0214	<a href="http://www.comsis.org/">http://www.comsis.org/</a>
6.	Filomat	0354-5180	<a href="http://operator.pmf.ni.ac.rs/www/pmf/publikacije/filomat/filomat_pocetna.php">http://operator.pmf.ni.ac.rs/www/pmf/publikacije/filomat/filomat_pocetna.php</a>
7.	Hemijska industrija	0367-598X	<a href="http://www.ache.org.rs/index_sr.html">http://www.ache.org.rs/index_sr.html</a>
8.	International Journal of Electrochemical Science	1452-3981	<a href="http://www.electrochemsci.org/">http://www.electrochemsci.org/</a>
9.	Journal of Mining and Metallurgy: Section B	1450-5339	<a href="http://www.jmmab.com/">http://www.jmmab.com/</a>
10.	Journal of the Serbian Chemical Society (JSCS)	0352-5139	<a href="http://www.shd.org.rs/JSCS/">http://www.shd.org.rs/JSCS/</a>
11.	MATCH: Communications in Mathematical and in Computer Chemistry	0340-6253	<a href="http://www.pmf.kg.ac.rs/match/">http://www.pmf.kg.ac.rs/match/</a>
12.	Nuclear Technology and Radiation Protection (NTRP)	1451-3994	<a href="http://ntrp.vinca.rs/">http://ntrp.vinca.rs/</a>
13.	Panoeconomicus	1452-595X	<a href="http://www.panoeconomicus.rs/">http://www.panoeconomicus.rs/</a>
14.	Psihologija	0048-5705	<a href="http://www.dps.org.rs/casopis-psihologija/">http://www.dps.org.rs/casopis-psihologija/</a>
15.	Science of Sintering	0350-820X	<a href="http://www.iiss.sanu.ac.rs/journal.htm">http://www.iiss.sanu.ac.rs/journal.htm</a>
16.	Srpski arhiv za celokupno lekarstvo	0370-8179	<a href="http://www.srp-arh.rs/">http://www.srp-arh.rs/</a>
17.	Thermal Science	0354-9836	<a href="http://thermalscience.vinca.rs/">http://thermalscience.vinca.rs/</a>
18.	Vojnosanitetski pregled (VSP)	0042-8450	<a href="http://www.vma.mod.gov.rs/vsp/">http://www.vma.mod.gov.rs/vsp/</a>

Table 2 – Journal impact factor for journals with SCI listing form Serbia

No.	ISSN	JIF <sub>2001</sub>	JIF <sub>2002</sub>	JIF <sub>2003</sub>	JIF <sub>2004</sub>	JIF <sub>2005</sub>	JIF <sub>2006</sub>	JIF <sub>2007</sub>	JIF <sub>2008</sub>	JIF <sub>2009</sub>	JIF <sub>2010</sub>	Mean
1.	0567-8315	0,047	0,096	0,048	0,146	0,149	0,081	0,143	0,167	0,179	0,169	<b>0,123</b>
2.	1452-8630										0,645	<b>0,645</b>
3.	0354-4664									0,238	0,356	<b>0,297</b>
4.	1451-9372										0,580	<b>0,580</b>
5.	1820-0214										0,324	<b>0,324</b>
6.	0354-5180										0,101	<b>0,101</b>
7.	0367-598X									0,117	0,137	<b>0,127</b>
8.	1452-3981									2,175	2,808	<b>2,492</b>
9.	1450-5339									0,548	1,294	<b>0,921</b>
10.	0352-5139	0,244	0,361	0,474	0,522	0,389	0,423	0,536	0,611	0,820	0,725	<b>0,511</b>
11.	0340-6253	0,579	0,758	0,639	1,000	0,828	2,000	2,580	3,500	3,217	3,291	<b>1,839</b>
12.	1451-3994										0,706	<b>0,706</b>
13.	1452-595X										0,078	<b>0,078</b>
14.	0048-5705									0,082	0,141	<b>0,112</b>
15.	0350-820X					0,111	0,225	0,481	0,412	0,486	0,403	<b>0,353</b>
16.	0370-8179										0,194	<b>0,194</b>
17.	0354-9836									0,407	0,706	<b>0,557</b>
18.	0042-8450										0,199	<b>0,199</b>

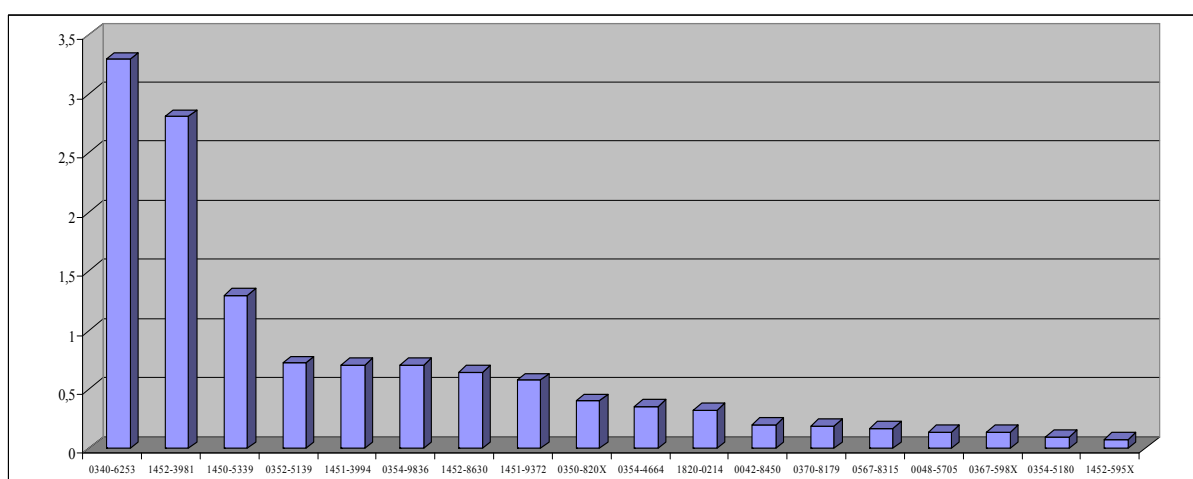


Figure 2 – Graphical display of journals ranking in 2010 from Serbia according to impact factor

### 3. INFORMATION ABOUT THE OF JOURNALS WITH IMPACT FACTOR FROM UKRAINE

From more than 600 scientific and technical journals that are published in Ukraine until 2006 only five journals had an impact factor in 2009 eight journals had an impact factor in 2010 seventeen journals had an impact factor [20]. This means that in 2010 nine journals from Ukraine received impact factor. Table 3 provides an overview of the journal from SCI-E lists from Ukraine, with journal name, ISSN number and Web site on which a particular journal is available. And in table 4 are given data on the journal impact factor for the period 2001-2010. Figure 3 graphically shows the ranking journals according to impact factor for 2010 from Ukraine. Based on Figure 3 we can see that the journal "Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)," published by the Institute of Mathematics of Kyiv has the greatest impact factor in 2010 of 0.856, and journal "Condensed Matter Physics (CMP)", published by the Institute for Condensed Matter Physics - ICMP from Lviv has the greatest impact factor in 2010 of 0.800 and so on.

Table 3 – Tabular presentation journals with SCI listing from Ukraine

No.	Journal name	ISSN	Web site
1.	Condensed Matter Physics (CMP)	1607-324X	<a href="http://www.icmp.lviv.ua/journal/">http://www.icmp.lviv.ua/journal/</a>
2.	Journal of Mathematical Physics, Analysis, Geometry (MAG) (Журнал математической физики, анализа, геометрии)	1812-9471	<a href="http://jmage.ilt.kharkov.ua/mag_e.html">http://jmage.ilt.kharkov.ua/mag_e.html</a>
3.	Journal of Superhard Materials (Сверхтвердые материалы)	1063-4576	<a href="http://ism.kiev.ua/stm/">http://ism.kiev.ua/stm/</a> and <a href="http://springeronline.com/journal/11961/">http://springeronline.com/journal/11961/</a>
4.	Journal of Water Chemistry and Technology	1063-455X	<a href="http://icwc.kiev.ua/ru/about/publishing_activity/r4/r4.html">http://icwc.kiev.ua/ru/about/publishing_activity/r4/r4.html</a> and <a href="http://springeronline.com/journal/11962/">http://springeronline.com/journal/11962/</a>
5.	Kinematics and Physics of Celestial Bodies (Кинематика и физика небесных тел)	0884-5913	<a href="http://www.maik.ru/cgi-perl/journal.pl?name=kinphys&amp;lang=rus">http://www.maik.ru/cgi-perl/journal.pl?name=kinphys&amp;lang=rus</a> and <a href="http://springeronline.com/journal/11963/">http://springeronline.com/journal/11963/</a>
6.	Low Temperature Physics (Физика низких температур)	1063-777X	<a href="http://ltp.aip.org/">http://ltp.aip.org/</a>
7.	Materials Science (Фізико-хімічна механіка матеріалів)	1068-820X	<a href="http://www.springerlink.com/content/106482/">http://www.springerlink.com/content/106482/</a>
8.	Металлофизика и новейшие технологии	1024-1809	<a href="http://www.nbu.gov.ua/portal/natural/mp_hnt/">http://www.nbu.gov.ua/portal/natural/mp_hnt/</a>
9.	Neurophysiology (Нейрофизиология)	0090-2977	<a href="http://www.springerlink.com/content/106488/">http://www.springerlink.com/content/106488/</a>
10.	Nonlinear Oscillations (Нелінійні коливання)	1536-0059	<a href="http://www.imath.kiev.ua/~nosc/">http://www.imath.kiev.ua/~nosc/</a> and <a href="http://www.springer.com/mathematics/">http://www.springer.com/mathematics/</a>

			<a href="http://dynamical+systems/journal/11072/">dynamical+systems/journal/11072/</a>
11.	Powder Metallurgy and Metal Ceramics (Порошковая металлургия)	1068-1302	<a href="http://www.springerlink.com/content/106491/">http://www.springerlink.com/content/106491/</a>
12.	Problems of atomic science and technology (PAST) (Вопросы атомной науки и техники - ВАНТ)	1562-6016	<a href="http://vant.kipt.kharkov.ua/">http://vant.kipt.kharkov.ua/</a>
13.	Strength of Materials (Проблемы прочности)	0039-2316	<a href="http://www.springerlink.com/content/106498/">http://www.springerlink.com/content/106498/</a>
14.	Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)	1815-0659	<a href="http://www.emis.de/journals/SIGMA/">http://www.emis.de/journals/SIGMA/</a>
15.	Theoretical and Experimental Chemistry (Теоретическая и экспериментальная химия)	0040-5760	<a href="http://www.springerlink.com/content/106499/">http://www.springerlink.com/content/106499/</a>
16.	Ukrainian Journal of Physical Optics	1609-1833	<a href="http://www.ifo.lviv.ua/journal/index.html">http://www.ifo.lviv.ua/journal/index.html</a>
17.	Ukrainian Mathematical Journal (Український математичний журнал)	0041-5995	<a href="http://www.springerlink.com/content/106501/">http://www.springerlink.com/content/106501/</a>

Table 4 – Journal impact factor for journals with SCI listing from Ukraine

No.	ISSN	JIF <sub>2001</sub>	JIF <sub>2002</sub>	JIF <sub>2003</sub>	JIF <sub>2004</sub>	JIF <sub>2005</sub>	JIF <sub>2006</sub>	JIF <sub>2007</sub>	JIF <sub>2008</sub>	JIF <sub>2009</sub>	JIF <sub>2010</sub>	Mean
1.	1607-324X							0,470	0,488	0,475	0,800	<b>0,558</b>
2.	1812-9471										0,265	<b>0,265</b>
3.	1063-4576										0,547	<b>0,547</b>
4.	1063-455X										0,218	<b>0,218</b>
5.	0884-5913										0,337	<b>0,337</b>
6.	1063-777X	0,619	0,767	0,700	0,592	0,769	0,622	0,955	0,780	0,662	0,625	<b>0,756</b>
7.	1068-820X	0,150	0,099	0,154	0,164	0,165	0,152	0,165	0,226	0,231	0,210	<b>0,208</b>
8.	1024-1809	0,179	0,124	0,152	0,185	0,084	0,044	0,150	0,107	0,089	0,150	<b>0,124</b>
9.	0090-2977	0,329	0,371	0,353	0,339	0,400	0,114	0,177	0,027	0,087	0,279	<b>0,143</b>
10.	1536-0059										0,158	<b>0,158</b>
11.	1068-1302	0,161	0,138	0,127	0,148	0,147	0,128	0,262	0,201	0,238	0,288	<b>0,247</b>
12.	1562-6016									0,013	0,039	<b>0,026</b>
13.	0039-2316										0,267	<b>0,267</b>
14.	1815-0659									0,789	0,856	<b>0,823</b>
15.	0040-5760										0,577	<b>0,577</b>
16.	1609-1833										0,659	<b>0,659</b>

17.	0041-5995										0,167	<b>0,167</b>
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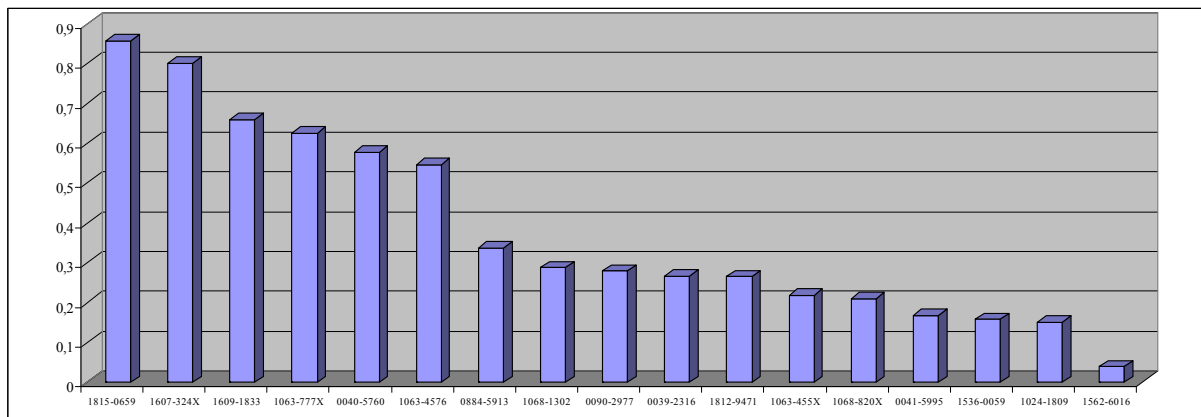


Figure 3 – Graphical display of journals ranking in 2010 from Ukraine according to impact factor

### 3. CONCLUSION

From over 500 scientific-technical journals that are published in Serbia, eighteen journals had impact factor in 2010, and eight journals have obtained impact factor in that year.

From over 600 scientific-technical journals that are published in Ukraine, seventeen journals had impact factor in 2010, and nine journals obtained impact factor in that year.

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