Nobel Prize Winners and Hirsh index

As we know, the best parameter which characterizes the activity of a scientist is Hirsh index. This index takes into consideration both the level of citations of the articles of a scientist (a researcher, a science producer), but also the number of articles published and quoted. But there are also some exceptional situations, which cannot be correctly placed by Hirsh index. Thus, if a researcher has only one paper, but with a great number of citations, meaning a breakthrough paper with a crucial value for the science, he will have a calculated Hirsh index with the value 1. A young yet remarkable person who has only a few papers (because he did not have time to engender more articles!!!) cannot surpass the index corresponding to the maximum number of published papers, even if each paper had been quoted hundreds of thousands times. In spite of these limitations, Hirsh index remains a very important indicator of the qualitative level of the scientific activity of a scientist.

It is very interesting to compare the Hirsh indices of Nobel Prize winners with those of the good scientists, with researches and valuable results.

Here is the example of physics. Let's take the case of Nobel Prize winners in the latest years. We give below the list of the Nobel Prize winners for physics in the latest years. We have put next to the Nobel Prize winners their Hirsh index (according to the data ISI-Thomson Reuters), the total number of papers and the main journalss where they have published their researches which lead to Nobel Prize winning.

1986	Gerd Binning	IH=47	198 papers	Phys. Rev. Lett., Helvetica Acta, Appl. Phys. Lett., IBM Res. J., Science, Surf. Sci., Rev. Mod. Phys., Sci., Instr. Europhys. Lett.
1986	Heinrich Rohrer	IH=58	409 papers	Phys. Rev. Lett., Helvetica Acta Physica, Appl. Phys. Lett., Nature, IBM Res. J., Surf. Sci., Rev. Mod. Phys., J. Cell Biol.
2004	David J. Gross	IH=59	271 papers	Phys. Rev. Lett., Rev. Mod. Phys., Nucl. Phys. B, Phys. Rev. D
2004	David H. Politzer	IH=31.5	53 papers	Phys. Rev. Lett., Phys. Rev. D, Nucl. Phys., Phys. Lett. B
2004	Frank Wilczek	IH=77.5	411 papers	Phys. Rev. Lett., Phys. Rev. D., Nucl. Phys. B
2006	George F. Smoot	IH=50.5	386 papers	Phys. Lett. B, Eur. Phys. C, Astrophys. J.
2007	Albert Fert	IH=53.5	747 papers	Phys. Rev. Lett., Phys. Rev. B, JMMM, Appl. Phys. Lett., Science
2007	Peter Andreas Guernberg	IH=35.5	466 papers	Phys. Rev. Lett., Phys. Rev. B, Phys. Status Sol. (a), JMMM, Europhys. Lett.

2008	Yoichiro Nambu	IH=34.5	381 papers	Phys. Rev. D, Ph. Rev. Lett., Phys. Lett. B, Science

A summary look on the above-mentioned data renders evident the fact that, as a rule, the Nobel Prize winners' scientists have a huge scientific record, a great number of published papers, an impressive number of citations at the most important published papers (the most quoted paper of Gerd Binnig gave 5823 citations up to now) and a very high Hirsh index. The reviews where the most important results in physics are published are as follows: Physical Review Letters, Physical Review B, D but also the reviews with an important impact factor such as: Science or Nature.

If we compare these data with the ones we have in Romania, we can notice the fact that Emil Burzo and Nicolae Zamfir, have Hirsh index 29, T. Angelescu has IH=33 and the theoretician Dumitru Mihalache has IH=28 (201 papers). We notice the fact that in Chemistry, the highest Hirsh index seems to belong to Acad. Prof. Dr. Ionel Haiduc" 31. In biology, Maya Simionescu is on the first place with IH 42 (361 papers). It is remarkable the fact that Maya Simionescu worked a long period of time with Prof. G. Palade, Nobel Prize winner for medicine (IH=119 (383 papers). Nevertheless, the most quoted paper of the scientist M. Simionescu has only co-authors: M. Simionescu and N. Simionescu.

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