

# HOW TO GET AN ERC ADVANCED GRANT ?

*The European Research Council has released results of the first competition for Advanced Grants in November 2008. Out of 2167 applications covering all branches of science the ERC selected for financing 275 grants, which gives a 12.7% success rate.*

*Proposals in the group Physical Science and Engineering (PE) were evaluated by one of 9 panels of experts, two of which were devoted to physics: PE2 - Fundamental constituents of matter and PE3 - Condensed Matter Physics.*

In spring 2008 I took part in evaluation of the proposals in physics as a member of the PE-2 panel. A preliminary verification of all applications with respect to formal issues was performed by the ERC experts. The vast majority of applications passed this test and were distributed among all members of the panel. In the first phase every application was evaluated by at least four experts.

Every member of our panel had to evaluate 30-40 applications and was asked to evaluate on a scale from 0 to 4 points a) scientific achievements of the principal investigator and b) quality of the research project. The sum of both scores was used to create the first ranking list of all projects.

In general both scores were independent, but in practice their occurrence appeared to be correlated: the final position at the ranking list depended strongly on the scientific CV of the principal investigator. During the first three-day meeting of the panel in Brussels each proposal was presented by a lead reviewer and discussed in detail. About one third of the best applications were retained for further evaluation.

In the second phase these applications were also evaluated by external referees nominated by

the panel. During the second meeting of the panel the financial part of each application was considered. These issues could influence the total budget of the project endorsed by the panel, but they did not have much impact on the position of the application on the final ranking list of applications, according to which the ERC was awarding the grants..

The list of successful applicants in both physics panels, published by the ERC website, is presented in Table 1 of the web version of this article (link to be provided by the author: karol@tatrif.uj.edu.pl). Any reader knowing the main actors of the European physicists' scene can verify if he agrees with the statement that the *Advanced Grants* were awarded to the leaders in our field.



Every applicant had to choose his 10 best publications published in the recent decade and add how many times each of these papers were cited in the literature. The total number L of these citations describes well how the scientific community perceives their recent achievements. These numbers were provided by the ERC in the dossier of every applicant.

However, during the evaluation process the panel did not put much emphasis on any bibliometric data. It was the opinions of

▼ **TABLE:**  
Mean number of publications, citations, counting articles without citations and the h-index computed for the laureates of the 2008 ERC AdG for Physical Science and Engineering panels.

Panel	Name	papers	citations	no auto	index h
<b>Physical Sciences &amp; Engineering</b>					
PE1	Mathematical foundations	29	281	141	9
PE2	Fundamental constituents of matter	106	4192	2148	30
PE3	Condensed matter physics	109	2357	1253	23
PE4	Physical & Analytical Chemical sciences	137	4051	2248	33
PE5	Materials & Synthesis	254	5782	3735	38
PE6	Computer science & informatics	55	564	262	10
PE7	Systems & communication engineering	51	949	384	15
PE8	Products & process engineering	55	503	242	12
PE9	Universe sciences	125	4039	2162	33
PE10	Earth system science	92	1514	910	21

the experts which did matter, not the bare numbers. Only after completing the evaluation process, I realised a correlation between these data and the final outcome. For instance, the median number  $L$  among all 117 applications evaluated by the PE-2 panel was equal to 384, the median for the group of 33 proposals in the second phase was equal to 853, while it amounts to 1326 for the group of 14 winning proposals.

To make a reasonable use of the parametric data, one needs to rescale them according to some average values in a given field, since the mean values of publications and citations depend on the branch of science and even its sub-field. As a rule of thumb, one can only say that the chances for the final success of a physicist are not large unless he can select ten of his papers written during the

last decade which were cited in total a *few hundred times* and his scientific achievements are well known outside his narrow sub-field of physics.

Such a preliminary condition will be different in other fields, but for any scientist it could be useful to compare his record with the data characterising the group of 2008 Advanced Grant laureates. For every successful applicant, we found in the *ISI Web of Knowledge*<sup>1</sup> their number of publications, number of citations and their Hirsch *index*<sup>2</sup> and computed the median for each panel. These data, presented in Table, reflect large differences between various branches of science.

In conclusion, the quality of the best applications for the ERC Advanced Grants was very high, at least in the PE-2 panel. To have a fair chance to obtain such a

grant the potential applicant has to:

1. prepare his application precisely according to the formal criteria provided by the ERC,
2. produce a very good research proposal written in a clear way. On the one hand, it should satisfy the experts in the field, but on the other hand it has to be understandable for other members of the panel,
3. demonstrate an outstanding scientific CV which allows the experts to consider him as one of the leaders in the field. Not only his bibliometric parameters should be far above the average in his specialisation, but his achievements should be widely known and appreciated. ■

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### note

<sup>1</sup> These data were taken for the 1996-2008 time range comparable with the 10 years time window used in ERC applications.

<sup>2</sup> Hirsch index of a scientist is equal to  $h$  if he has at most  $h$  papers each of which was quoted at least  $h$  times.