

# Report of the External Permanent Advising Scientific Committee

## **Members of the Committee:**

Barry Arnold, University of California, USA

Charles R. Johnson, College of William & Mary, USA

Immanuel Bomze, University of Vienna, Austria

Rafael Ortega, University of Granada, Spain

Roman Zmyślony, University of Zielona Gora, Poland

**Barry C. Arnold**, University of California Riverside; External Advisory Committee member.

As is customary, the report provides a well-organized overview of activities in the Center during 2017.

The emphasis continues to be on research activity including both research conducted wholly within the Center and research conducted in collaboration with external colleagues. There is limited attention paid to the teaching activities of the individual researchers and the four research groups. Such information were it available, might help explain variability in research productivity of individual investigators and between research groups.

Using, as in past years, a simple but crude summary statistic, the average number of papers published in WoS publications per researcher, it can be argued that 2017 represents a level of productivity very similar to that in the previous year. An average of at least one such publication per year is a reasonable minimum benchmark for researchers in the mathematical sciences. The CMA researchers are producing at that level, but this year the typical positive trend in research productivity is not evident. This is not cause for concern, since delayed refereeing can result in a reduced number of publications in a given year, but this should be compensated by a somewhat increased yield the following year. It is to be hoped that the positive trend will reappear next year. As a suggestion, it might be better to report and use for comparison and/or evaluation, a 5 year average number of publications, rather than a yearly total.

There are variations in the journal publication records of the four research groups. For example, the AL and An groups are well above the 1-per-year WoS benchmark (which is commendable), while OR and SRM are slightly below 1. It should be noted that in both cases, OR and SRM, just one more paper for each group accepted for publication during the year would bring them up to the benchmark.

Some growth in research funding is evident. However, there appears to be an error of omission or addition in the last column of the table on page 24. The level of international cooperative research continues to be high.

The number of Ph.D. students currently being supervised is lower than might be hoped. The fact that only one Ph.D. was completed in 2017 is disappointing. More activity in this area could be expected. A steady flow of post-doctoral visitors can be expected to bring new ideas and enliven the research ambiance. I'm a little surprised to see that one post-doc is to spend 6 years at CMA, or was that a typo?

The active seminar series at CMA is an important feature, though perhaps an increase in the number of SRM seminars might be hoped for. The short-term visitor program instituted in 2015 will be of great value to all four research groups. All four groups should be strongly encouraged to participate in this program.

Overall, the 2017 report documents a continuing pleasing picture of research activity at the Center.

Dear Antonio, Thanks for the current (2017) CMA report, which I have now read with some care. Here are my thoughts about it.

This year's annual report, in a slightly less detailed format, shows that the Center continues to do a very strong job in fostering research in Portugal. The per capita productivity numbers are nearly the same as last year's. The difference is likely statistical variation, and the lack of further identifiable growth probably reflects that the incorporation of new members in recent years is now complete. The large number of IM's is also a factor.

As a purist, this reviewer has concerns about how well the measures used (all be them objective) reflect real research impact (I am not arguing that they don't). It could be useful to compile other measures of recognition of work. One would be citations of past work by others (ie non-self-citations). This is necessarily lagged, but objective and quite valuable. A bit of head-scratching (or even experimentation) could turn up others. There is no fraud in compiling legitimate measures that reflect well on the Center. I also wonder whether normalization by subject area could be informative. Group 4 is the largest, and is at the lower end of productivity. Is this to be expected disciplinarily? If so, the numbers might look better. (Note bene: this is an important area, but likely no center has a relatively larger group in the country.)

I also wonder whether recognition of productivity that advances mathematics is broad enough. Books, of all types, lecture series, even creative outreach, as well as Master's and PhD advising, etc, are quite valuable to the subject.

The Center supports many activities. Most of these appear worthwhile in isolation, thought of varying immediacy of impact. Resources overall are limited. I cannot help but wonder whether the totality of these activities spreads existing resources too thinly. (It is a question.) Traditional research needs of IM's should not be overlooked. It is a tough world, and discussion of this seems warranted.

Finally, let me raise a point I have commented upon before. Two things that should be highly prized by FCT are 1) the reinvigoration of a dormant faculty member, so as to become an IM; and 2) intra-group collaboration (as well as inter-group). Perhaps some extra incentives/rewards for this might be offered.

**Charles Johnson**

Advisory Commission Member



**Fakultät für  
Wirtschaftswissenschaften**

Institut für Statistik und  
Operations Research

Univ.Prof. Mag. Dr. Immanuel Bomze  
Oskar-Morgenstern-Platz 1  
1090 Wien  
Austria

T +43 (1) 4277-386 52  
F +43 (1) 4277-386 59  
immanuel.bomze@univie.ac.at  
<http://www.isor.univie.ac.at/>

To whom it may concern

Vienna, 08 May 2019

**Review of the Scientific Report 2017 of  
CMA/FCT/UNL**

The 2017 Scientific report has been sent several times to me. I refer to the most recent received in April 2019 (which I think is quite similar to that I received in March 2019). It documents another productive year for the Centro de Matemática e Aplicações (CMA) at FCT/UNL. This has been achieved despite the adverse circumstances regarding teaching load that were mentioned in already several previous reports.

From a manpower perspective, after an expansion phase ending in 2015, the reported year 2017 clearly belongs to a consolidation phase begun in 2016. In view of above mentioned constraints on research time resources, it is remarkable that the significant increase in WoS publications per capita in 2016 was still improved upon in 2017.

International visibility of all groups has been further increased by several scientific activities, first and foremost by publications in international peer-reviewed journals and proceedings (a good indicator is the immediacy index), but also by presenting research results in conferences, workshops and seminars. Worldwide recognition and excellent reputation have also been augmented by organizing national and international conferences (with an autonomous budget now), and likewise by active participation in peer-reviewing and submission evaluations for top publication outlets.

Summarizing, the report shows again a significant progress and opens good perspectives of the future of CMA, either staying on a growth path or consolidating at an already high level. Funding (in particular travel support) should be significantly increased to allow for more international presence at conferences and/or networking within the scientific community, otherwise this level would be very hard to keep.

Immanuel M. Bomze

## Comments on the Scientific Report 2017

March 28, 2019

First of all I would like to congratulate the people who have prepared the report. It is very clear and informative and it contains some remarkable initiatives developed in the last years. In particular I would like to mention the introduction of a productivity criterion (page 21) and the visitor and postdoc programs (page 27).

For future reports I would suggest the inclusion of additional information in several aspects.

- The analysis of the research impact (page 25) is only concerned with the immediate factor (citations in 2017/paper in 2016). In my opinion an impact factor for older papers is more significant. The diagram comparing the immediate impact factor of different countries (page 11) may be significant in this aspect. The results do not seem very good for France, a country with such a great mathematical tradition. I suspect that these results would be very different if the citations in 2017 of older papers would be considered. In some disciplines immediate impact factors and self-citations are probably linked.
- The diagrams in page 10 on scientific productivity classify journals in two categories: indexed at WOS and peer-reviewed. Perhaps other categories could be informative: by areas (mathematics, applied mathematics, others), by position in some lists of impact factor,...
- The discussion on the teaching load in page 26 perhaps could include a table connecting the number of hours and the scientific productivity.
- Some additional information on Ph D students could be significant. I have found that there are 5 Ph D students in Algebra, 2 in Operations Research and 9 in Statistics and Risk Management. I have not found information on this point in Analysis, sorry if I am missing it. In case there are no Ph D students in Analysis, it seems important to change this in the next years.

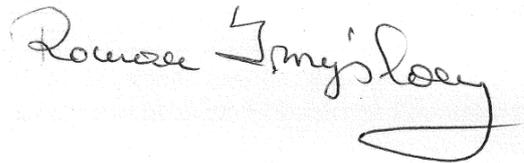
As in the previous report, I am glad to say that in the section on the production of the groups, there are papers published in very good journals. With my congratulations for all the achievements and my best wishes for the future,

Rafael Ortega.

**Review of Center for Mathematics and Applications (CMA) by External  
Advisory Committee Member Roman Zmyślony**

This review consider activity of the members belonging to the research group “Statistics and Risk Management”. In this group there are 30 active scientists. This group contains members from different universities for example: UBI, NOVA, TU Tomar. This group cooperate with many international mathematicians from such countries as: Argentina, Slovakia, Poland, USA. As a result of this cooperation they published 29 articles in many important journals (high impact factor) such as: Bioinformatics, Test, JMVA, LAA, CiS, Physics and Chemistry of The Earth, Economic Theory. Some of the results were presented in international conferences: Rhodes, Thessaloniki (Greece), Rome (Italy), “Statistics and Risk Management” group organized 9 seminars. Many international speakers presented theirs results in these seminars. Under supervision of this group there are 9 PHD students. Research of this group was partially funded by four grants.

As a reviewer I would say that activity of “Statistics and Risk Management” group is very high and valuable both from theoretical and application point of view. It is worth to mention that publication activity of this group has increased year by year.

Roman Zmyślony