REPORT ON THE COMMENTS RECEIVED BY THE INSTITUTE OF MATHEMATICAL STATISTICS IN RESPONSE TO THE PROPOSAL TO CHANGE THE NAME OF THE NSF DIVISION OF MATHEMATICAL SCIENCES

The community that the IMS represents

The Institute of Mathematical Statistics (IMS) is an international society largely concerned with fostering research in the theory and applications of probability and statistics. The IMS has approximately 4500 members, roughly 60% of whom are based in the US. The IMS publishes five leading journals covering a broad range of research in the theory and applications of probability and statistics and sponsors or cosponsors numerous research conferences.

Historically, the IMS, founded in 1935, grew out of the American Statistical Association (ASA), in order to support and publish more mathematically based research in statistics, including probability. Indeed, the ASA, which has approximately 18,000 members, represents a much broader spectrum of statisticians than the IMS. Their membership includes researchers and practitioners in government, academia and industry. The ASA is also involved in a wider range of activities beyond research, including education and accreditation. The IMS maintains strong links to the ASA through various cooperative activities. The IMS also conducts joint activities with some other societies, including the Applied Probability Society of INFORMS, the Bernoulli Society for Mathematical Statistics and Probability, the International Statistical Institute and the International Society for Bayesian Analysis.

Most members of IMS are in academia, and since the Institute represents both statistics and probability, members can be found in both mathematics and statistics departments as well as in other departments where statistics and probability play significant roles. From the strong responses to the proposed name change that have come from other professional societies more homogeneous in their representation of mathematics and statistics, it is not surprising that there are highly divergent views among the members of IMS. In fact the foundation of the division of opinion is quite clear from a simple summary of the opinions of our members:

	Math dept	Stat dept/title	Other	
Yes to name change	0	35	5	**40**
No to change	10	6	1	**17**
	10	**41**	**6**	**57**

Here “Stat dept” means the individual is in a statistics department or a department with statistics in its name or has statistics in a professorial title. “Other” is primarily government or industry. The division of opinion is even more precise if one takes into account that at least two of the six “Stat dept” members opposed to the change would be recognized as probabilists.

The IMS has the responsibility of fairly representing these divergent views, but perhaps it also has the responsibility, based on its own experience, of pressing the point that the two communities have more to gain from collaboration and mutual support than they have to gain from conflict.

The IMS is also the society most closely aligned with the current grant holders in the DMS Statistics Program. (There is a separate DMS Probability program.) A review of the most recent 100 grants by the Statistics Program reveals the following regarding grantee society membership of the principal investigator.

	Math Soc member	Not Math Soc	
Stat Soc member	11	74	**85**
Not Stat Soc	1	14	**15**
	12	**88**	**100**

Of DMS-Stat awardees, 85% belong to a statistical society (IMS or ASA), only 12% belong to a math society (AMS, SIAM or MAA) and 11% belong to both a statistical society and a mathematical society.

	IMS member	Not IMS	
ASA member	54	11	**65**
Not ASA	20	15	**35**
	74	**26**	**100**

Of the DMS-Stat awardees that belong to a statistical society, 87% (i.e. 74/85) belong to IMS. Since ASA (18,000) is much larger than IMS (4500), it seems clear that only a small portion of the statistics research community find funding through DMS-Stat.

Summary of member comments

In the summary of selected comments that follows, quotes are verbatim from the e-mails we have received except that obvious typos have been corrected to ease reading. (We have remained neutral regarding conflicts between British and American spelling.) Occasional edits that (hopefully) clarify intent, maintain anonymity, or interpolate through material that has been cut are indicated by square brackets […]. We have grouped the comments according to recurring themes given in bold. Some of these themes involve opposing assertions.

The proposed name change would be an overdue recognition of the importance of statistics that has been long denied by the mathematical community. Vs. The proposed name change is an unwarranted power grab. The debate over the proposed name change has generated a variety of harshly stated positions. At the risk of overemphasizing a minority of more extreme views, we begin with some of these because they starkly present the conflict that the proposal has generated, and they also reveal some of the historical issues that color the current debate. They do not necessarily suggest the most constructive way to go forward from where we are now. There is no clear agreement among respondents regarding the meaning of "statistical sciences" or on the breadth of the "mathematical sciences."

"The creeping destruction by mathematicians of the field of Statistics, that has already taken place in the UK and Australia, needs to be resisted by the IMS. The US and Canada have become the only countries with vibrant Statistics cultures not held hostage by and beholden to the whim of mathematicians. The total number of Statistics departments in the UK and Australia is less or equal to than the number of "Statistics/Biostatistics" departments in Texas alone! What the IMS should be asking for is a separate Division for Statistics that recognizes that Statistics is not a subfield of Mathematics, as much as mathematicians think it is, and want it to be so they can take all the resources Statistics generates.

So, yes, I support the name change, but it's far, far too little. IMS and ASA should aim for the recognition of Statistics as a discipline separate from mathematics. Also, IMS should coordinate its response with ASA, so that Statistics as a discipline is represented fairly."

"Given that a pretty big proportion of the math-sciences PhDs are granted to statisticians (information from NSF data), I think it is about time that the Statistical Sciences gain some recognition."

"Changing the name of DMS is a really bad idea...The AMS is rallying to stop this and they should. Statistics is about 10% of DMS… Statistics is just one color in the rainbow of Mathematical Sciences and it does not deserve to be part of the name of the division."

"I am concerned by the manner in which the proposed name change has been handled so far. I only heard about the name change recently, believe that it is only now being publicized, and fear that the efforts at promoting the name change are being rushed. Such a name change is important because of its likely impact on the future mission of the division and the corresponding allocation of funding. It should be made only after careful consultation among researchers in the DMS division. I hope such a careful consultation is carried out before a final recommendation is reached. … I believe that the proposal of such a name change, especially in the manner in which it has been made, is divisive among researchers in the DMS division. I hope that proponents of a name change will reconsider, with this in mind."

"I find it troubling that the current director of DMS, who is a statistician, would choose to use his position to enhance his own field within NSF at the expense (I believe) of the other mathematical sciences. His responsibility is to support all of the mathematical sciences."

"A key question would be, has DMS been funding a lot of statistics work of that type, i.e. so non-mathematical that it doesn't properly come under the heading "Mathematical Sciences"? Or would the statisticians just like it to start doing so, and they would like to be able to later say, "Look, we need a bigger share of the pie, DMSS is the intended primary place statisticians go for funding. You can tell because it says 'Statistical' in the name!"

Statistics is a field separate from the mathematical sciences. Universities have recognized this distinct nature of statistics through the creation of separate statistics departments. There may be many lessons to learn from the place of statistics on university campuses. On the one hand, over a third of new Ph.D.s in the 2010 AMS doctoral survey come from statistics departments. On the other, some attempts to form separate statistics departments have failed and others have not achieved the level of productivity that one might hope because the statistical enterprise remains scattered among many programs on the campus.

"I will be brief, but I support the name change. The embedding of statistics within the Mathematical Sciences forces the confrontation of a two-culture problem. On the one hand statistics is rooted in mathematical structure and clearly much of probability owes itself at least as much to formal mathematics as to statistics. On the other hand the objectives of high quality statistical research may have little or nothing to do with anything that would normally be labeled as mathematics research. This is why virtually every major university in the US

has a separate department of statistics. Thus, recognizing this distinction through a formal change of names would be long overdue."

"Statistical science, while certainly mathematical in nature, is large enough and diverse enough to be its own field. It often is housed in a separate department at universities."

"Please count me among the strong supporters of the new name. As far as I am concerned, most research universities have already voted on this question. They either have separate statistics department and math departments, or they have one department with both names. Why? Because statistics has a clearly different identity and mission. The separation between the subjects started over 100 years ago, and now we have a different history and a different set of heroes.

"I write as a member of IMS (although I am also in ASA). I am strongly in favor of the name change. It will give our discipline the recognition it deserves and also recognize the evolution of mathematics into two separate disciplines. I attended a session at ISI on the future of mathematical statistics and to my surprise and delight, the premise of the session was that mathematical statistics will be motivated by applied problems. The name change at NSF recognizes that statistics is no longer merely theorem-proof-theorem-proof."

"I strongly support this name change and echo all reasons laid out in Dr. Pantula's letter. Here I add one more reason. A current trend across the globe is to treat statistics as a stand-alone discipline in the same way as mathematics...[In a document issued by the Chinese Department of Education in March 2011] under the category of Science, mathematics and statistics are now listed as two stand-alone disciplines. This document is issued to all universities and funding agencies in China."

"I am writing in support of the proposed change in the name of DMS to the Division of Mathematical and Statistical Sciences (MSS). Recognition of Statistics as distinct and separate from Mathematics is long overdue. Many disciplines (e.g., Physics, Computer Science, Engineering) use, and sometimes create new, mathematics, but they are recognized as distinct from Mathematics. Statistics is in this category."

"Henri Poincaré, who one might argue should know, wrote 'Mathematicians do not study objects, but the relations between objects; to them it is a matter of indifference if these objects are replaced by others, provided that the relations do not change. Matter does not engage their attention, they are interested in form alone.' (Henri Poincaré, 1905. My CosimoClassics edition, 2007, page 20). Now, one might argue that this is something of an exaggeration, or something which applies only to pure mathematicians, but the fact is that it contrasts completely with statistics, which is all about content, that is, about drawing conclusions about the real world.

The point is that, while mathematics lies at the heart of statistics, statistics is more than mere mathematics: the application domain is also critical. Furthermore, one can argue with equal merit that modern statistics is just as much a computational discipline as a mathematical one.

If one looks at recent applications of statistics, which are having an impact which can only be described as revolutionary, one sees very clearly the distinction: I am thinking of applications such as search engines, modern statistical approaches to natural language translation, credit scoring, and bioinformatics."

The statistical sciences need or would benefit from greater visibility in the scientific community. Perhaps a better point to make here would be that the scientific community would benefit from a greater awareness of the statistical sciences.

"I support the notion to change the name to Division of Mathematical and Statistical Sciences to reflect the increasing need for Statisticians in a variety of disciplines and to stress the importance of Statistical Sciences to be taught in our schools. Being able to collect, analyze, and interpret data continues to play a larger role in the advancement of all sciences, and by changing the name this will attract more attention to the Statistical Sciences so they are not incorrectly lumped with the Mathematical Sciences and the key contributions of Statistics are not overlooked, especially when it comes to grants and funding."

"I strongly support Dr. Pantula's suggestion to change the name from the Division of Mathematical Sciences to the Division of Mathematical and Statistical Sciences. This will give our profession more exposure and recognition among the sciences.

Statistics is a young science but thriving due to the increasing demand of analyzing and modeling data. However, it has not been getting the recognition it deserves as a standalone science (which it is!). The suggested name change is a positive step towards achieving the recognition it deserves as a key science for the future."

"I am wholeheartedly in favour of the name change for DMS. As a Canadian researcher, I am continually seeking ways to promote mathematical and statistical sciences in Canada, particularly through the Natural Sciences and Engineering Research Council. The proposed name change emphasizes the importance of both mathematical and statistical approaches to big problems, and having this recognized at the NSF would be a big boost for researchers in Canada as well, in both the mathematics and the statistics community. In years to come I predict that it will seem surprising that this proposal was viewed as controversial."

"From the perspective of statisticians and the IMS I do not envision any downside from the proposed change. If the change involves more attention and better funding within NSF and the broader scientific community then it will be beneficial for us. Even if it is just a name change it provides the potential for increasing attention and funding to statistical issues and statistical research.

I have been intermittently involved in efforts to increase leverage of our discipline within NSF. This name change seems a step consistent with those efforts. A separate, well-funded Statistics Division would of course be a much more impressive step, but smaller steps are much better than none at all. When "smaller" steps such as this were suggested in the past they have met with considerable resistance from the remainder of the mathematical science community, which (probably realistically) sees it as a symbol of the lessening of its leverage and influence, and a step in that direction. I think the letter you circulated from Sastry Pantula appropriately acknowledges such a change in society and academia."

"I think the name change will give the Statistical Sciences much needed visibility, and a bit more leverage."

"I am a statistician in [Europe], so not directly affected by the structure of the US NSF. But, perhaps discussions such as this in one country can at least draw attention to this issue elsewhere. I thank Dr. Sastry for his efforts and I do wish him success. However, I have the following concerns: From reading the letter (cf. 'Big data', etc.), I don't see in what way the importance of statistics is clarified. Rather, the importance of 'Informatics' (http://en.wikipedia.org/wiki/Informatics) is coming through. In fact, the role of Statistics is much deeper. It is something fundamental, and hence deserves a special attention (just like Mathematics itself). I do not think however that just because nowadays there are lots of data out there, Statistics can gain importance. This in my opinion would be the wrong argument. However, if this is done, I would expect a similar request from the Informatics (computational sciences) community and that would be justified. The technological advances have far surpassed what could have been imagined a few years ago & this has had profound effects in many fields of science and humanities; Statistics has also profited from the know-how in these fields. The modern scientific fields are meanwhile rather interdisciplinary. Research and services now need active inputs from many fields. For instance, surveys are not concerns of the Statistics community only, rather also of the various Social sciences, Psychology, etc. and any other relevant fields, and of course also of Statistics (important in particular at the design level). In large surveys or monitoring projects now, data collection is unthinkable without using various hardware and various computational algorithms which have their roots in many sciences such as Biology, Physics (and Statistics); satellites and GPS are just two of many examples used for remote sensing based data collection and elsewhere."

Statistics is one of many areas of the mathematical sciences that could argue for greater visibility. The current name covers those portions of the statistical sciences that are appropriate for DMS to fund. The term "statistical sciences" is not really parallel to "mathematical x" (mathematics applied to field x), although perhaps it is parallel to

"computational sciences." On the other hand, part of the concern expressed in these comments is the perception that statistics funding is a relatively small portion of DMS funding and that DMS funding for statistics is only a portion (of magnitude unknown to us) of overall statistics funding even within NSF.

"I question the emphasis indicated by employing statistics in the name of the division. Statistics is a part of the mathematical sciences, as are various other areas, and I believe it is not advantageous to start listing them individually, and hence emphasizing their differences.

In addition, only the theoretical aspects of statistics are currently represented in the DMS, with other areas receiving their funding elsewhere. The number of researchers and the research itself done in theoretical statistics is only a small portion of the total research done in the mathematical sciences at academic institutions done in the USA, however one wishes to measure this.

Certain problems that are applicable to statistics, such as the management of large data sets, are important and timely. I am not in a position to compare them with promising topics now appearing in other areas of the mathematical sciences. However, it seems unreasonable to me that the presence of such a topic should in itself be a strong argument for a name change, especially given the permanent nature and consequences of such a name change."

"I am writing to express my reservations about the name change. For some time now I have observed the somewhat uneasy marriage between what the DMS director calls ``core'' mathematics and probability, and trends within the statistical profession. The strains appear in many places (e.g. NSF career awards and grants selections, selection of speakers in IMS lectures, uneasy cooperation between different IMS publications in the statistical and probability sides).

[It is suggested that] the proposed name change will put Mathematics and Statistics on equal footing. I do not understand how that can be imagined: The culture within math (applied math, biological math, engineering math, and in my view, also mathematical statistics) does vary between areas but, in my experience, does present deeply entrenched common themes and standards across disciplines. Statistical sciences, on the other hand, represent a much wider spectrum; in fact, I suspect that the IMS, with its emphasis on mathematical statistics, is much smaller than other statistical organizations, and within the big field of statistics there is also a strong non-mathematical component. The name change reflects acceptance of these different views, and to a large extent a dilution of what I perceive as a core mission of the DMS, namely fostering the unity of mathematics while encouraging applications and exchanges with other scientific disciplines. Why should statistics, and not scientific computing, signal processing, or mathematical biology, be singled out?"

"Perhaps the most obvious question is, why single out statistics for inclusion in the name, when DMS is not even its primary home? There is of course a lot of very applied statistics funded outside DMS, but if someone is doing work so non-mathematical that it doesn't even qualify under the very broad heading "Mathematical Sciences," then perhaps they shouldn't be applying to DMS for funding."

"The proposed name change would be a big mistake. The DMS should support research activities in all of the mathematical sciences, broadly construed, including the mathematical aspects of statistics. There are other federal agencies that should (and I believe do) support other parts of statistics. The current name is a much better descriptor of this view of the division than the proposed name is."

"I believe this is a very serious decision which will have a significant impact on the future of DMS. There are many important aspects to the proposal some practical and political, others more scientific or philosophical. ***Practical:*** *How to position our scientific community(ies) to gather maximum support from society (in the United States)? The proposal letter makes the point that the name change will provide better visibility. The question is better visibility for what? Better support for what? In the largest interpretation of the names, Statistics (and Computer Sciences) receive funding from a great many sources because they involve a great spectrum of different activities (e.g., Walmart use of costumer data, Google research, security). As with many other applications of mathematical sciences, there is a huge distinction to be made between fundamental research*

and usage of developed science. It is very unclear that the name change will foster the emphasis of DMS on fundamental research. This emphasis is key to the future of US science.

From a scientific, educational, historical and philosophical perspective, I find it hard to make sense of this proposal. Mathematics has a history that spans many millennia. Along the way, several major sciences that were essentially indistinguishable from mathematics at first and still make fundamental use of mathematics have become independent entities. The best early example is, perhaps, astronomy. A recent compelling example is, of course, computer science. A much more complex and murky example is operations research. It is reasonable to believe that other "areas" of mathematics will become their own subject in the next 200 years. I have immense respect for these different scientific pursuits that started within mathematics. Still, they do not occupy in human knowledge the same position as mathematics. The status of statistics as a separate science is not entirely clear. Mathematical Statistics is definitively part of Mathematics. Dealing with large data sets will involve large amounts of new mathematics and large amounts of computational effort.

Other points: *It seems to me that there is diverging interpretation of the two terms: Mathematical Sciences and Statistical Sciences. If mathematical sciences was to include every contribution of mathematics to Science and Engineering that would be a very very large area. On the other hand, the term Statistical Sciences makes no sense without the inclusion of most activities involving statistics. The positions of Mathematics and Statistics with respect to scientific education are extremely different in scope.*

I think the Division of Mathematical Sciences should keep its name and support fundamental research in the mathematical sciences which includes (at least parts of) statistics. Perhaps other parts of statistics that involve very important computational aspects should find a different home together with other cybernetic activities."

"I am someone who has devoted a great deal of time and effort to research in both statistics and probability, and I probably have a reasonably educated perspective on the subject of changing the name of the Division of Mathematical Sciences at the NSF to Division of Mathematical and Statistical Sciences. The importance of data mining or developing new methodologies and computational techniques for dealing with massive data that are now routinely made available via the internet or by other means is undeniable. Also, the great recent advances in computing-both in speed and in the development of new algorithms- have been nothing short of amazing, and there is a lot more to come. However, it should not be forgotten that most of the recent breakthroughs in applied statistics, including the bootstrap and the analysis of microarray data, have come from theoretical statisticians, the kind of work the NSF in its present format is best suited to promote. Advances in computing have been made possible through basic research such as that giving rise to the MCMC, and also by computer scientists. A change of name of the DMS as proposed would send the wrong signal, namely, that the basic research in statistical theory and related fields, as presently supported by the NSF, is not well suited for the advancement of modern statistical applications.

It may be noted that the NIH provides substantial support specifically for some of the most important areas of applications of statistics, namely, those in biological and health sciences. If it is felt that there are certain areas of "big data" analysis and data mining that are not adequately addressed presently either at the NSF or at the NIH, perhaps one may consider creating another well thought out program under the DMS for that purpose. But given the current state of federal support for basic research at the NSF, one may only hope that even such a step will not undermine research in more fundamental aspects of statistics and their applications."

Changing the name would attract more resources to the Division. Vs. Changing the name would not attract more resources to the Division. In the current budgetary climate, it isn't clear how optimistic one should be regarding the availability of new resources, unless the division can play a larger role in the priorities that NSF must periodically articulate to Congress. The Division was able to obtain new resources to support the new program in Computational and Data-Enabled Science and Engineering in Mathematical and Statistical Sciences.

"I also believe that broadening the scope of the Division through the name change could also bring more resources to both the statistical and the mathematical sciences, largely because statisticians are deeply engaged in large scale applications of the sort that continue to receive special attention at NSF."

"The Director's letter contains several assertions about the effect of the name change, but no evidence to support them. Nor does it discuss the probabilities that unintended effects may occur. More generally, few details are given in his letter. Thus, I do not support the suggested name change."

"I am definitely in favor of such a change in name. As the letter suggests, I think the new name better reflects the activities that are likely to attract bigger funding allocations. Some years ago when I attended a NSF panel meeting, as a statistician I was in the minority (about 3 in 20 in the room). Times have changed, and with the utility of statistics in all areas of industry and research, I think this division should be increasing its funding for statistics related projects. The name change will reflect this."

"The proposed name change at NSF seems to me wise, far-sighted, and well-argued. I read this as being entirely about resource input TO the program, and nothing to do with any intention to redirect resources FROM the program to researchers. It is both disappointing and perverse if non-statistical mathematicians, let alone non-statistical mathematical statisticians, are objecting to this change - it's clear to me that this will preserve and increase political and popular support for resources going to all of the mathematical sciences - it should be neutral or positive for all of us."

"Having worked as a mathematician in both academia and industry, using lots of mathematics and some statistics, I certainly feel that the name "Mathematical Sciences" implicitly includes statistics as a subfield. On the other hand, it seems pretty clear from my current industry experience that data analysis is rapidly becoming a major, if not dominant, object of investigation and of interest from parties outside the field. Given that interest, I think that the proposed name change could very well help the DMS in the internal and external competition for resources at the NSF. If one takes a look at the organizational chart of divisions (http://www.nsf.gov/staff/orglist.jsp), it is clear that there are other divisions which could easily make a case for their involvement in 'big data' research. So, if the proposed change would enable DMS to defend and increase its share of resources for mathematical research, ***and do so without diluting research support for the mathematical sciences other than statistics****, then I am for it, but note the strong conditional in bold. If, on the other hand, the result would be to push support for more researchers onto DMS without adding proportionately more resources, or if the result were to reallocate resources within DMS toward statistics and away from other mathematics, then I am opposed."*

"I think extending the name to include statistics is a good idea. It doesn't hurt mathematicians who will proceed exactly as before. Let's hope that economy of scale will enable NSF to save overhead; there isn't all that much difference between the disciplines, and there is a lot of overlap."

"In the current economy it is understandable that mathematicians will see the name change as a threat to their funding and react (and overreact) accordingly. However, the change is inevitable and I am confident that no one can make the change happen better than Sastry Pantula---"better" in the sense of ensuring that Mathematics and mathematicians are not shortchanged in the process (and likely will benefit from it)."

Changing the name would attract proposals from members of the statistics community who do not currently apply to DMS and change the focus of the Division. It should be emphasized that some respondents would view such a result positively while others would view it negatively.

"I also think the name change will be interpreted as welcoming of grant applications from statisticians, whereas DMS does not make that welcome clear."

"I am opposed to the name change. For quite a few years now I have told people that I am a statistical scientist - I apply statistics to science, in most cases (all?) using novel statistical methods. I am afraid that the new name will bring in proposals from a lot of people who do applied statistics (as opposed to statistical science), and there isn't a lot of funding to go around particularly to the young people. There are other places for the applied statistics people to find funding."

"You probably already know that the AMS is strongly opposed to the name change, believing that it would lead to a much more applied focus, rather than the fundamental research focus that DMS now has. I tend to agree with the AMS. I believe that Mathematical Sciences is already broad enough to encompass the fundamental research into probability, stochastic processes, and mathematical statistics that are the domains of the IMS. Moreover, if we are to incorporate the two pillars that Pantula mentions in his letter, why not the third, computer science? There certainly should be divisions within NSF to support applied research involving massive data sets and the computational problems of extracting meaningful information from them. But DMS serves an important role by supporting fundamental research, and I am worried that the name change would shift the focus in another direction."

Where to from here?

Our mandate was to provide a fair summary of the comments of IMS members regarding the proposed name change. We hope that we have done that in a manner that is as useful as possible. We, however, choose to extend our mandate to make some observations about how NSF and the larger mathematical and statistical communities might proceed from here. We see two issues that are more fundamental than the name of one NSF division. There appears to be broad agreement, even among many who are strongly opposed to the name change, that the statistical sciences are changing rapidly and their importance in the overall scientific enterprise is increasing rapidly. Just as on many university campuses, support for the relevant work is scattered among many NSF directorates and divisions. It is natural to ask, particularly given the rapid changes in the field, if the current structure is as efficient, effective and productive as it might be. The second, closely related issue is the concern that this diffuse structure allows important work in subareas of statistics to "fall through the cracks." We suspect that some of the concerns about the failure of the Division of Mathematical Sciences to fund work in some areas should really be directed more broadly. We also suspect that proposals to address these more fundamental issues would win much wider support than the proposed name change.

Regardless of the next steps NSF chooses to make, we hope that the two communities along with other related "small science" communities recognize that there is much more to be gained by collaboration than conflict.

Respectfully submitted,

Iain Johnstone
Thomas G. Kurtz
Peter Bickel, Chair

Attachments:

Letter from Division Director Sastry Pantula proposing name change
Letter from IMS President Ruth Williams to IMS members soliciting comments

October 6, 2011

Dr. Fred Roberts
Convener, MPS AC Math/Stat Subgroup

Dear Fred,

I am writing to inform you regarding a proposal to change the name of our Division. My decision to seek a name change is the result of discussions on how best to position the Division for the future, in light of the very clearly established trends toward scientific discovery increasingly dependent on the collection and interpretation of (massive) data and quantitative information. Query a layperson (or a policymaker) as to the academic disciplines most relevant to the Age of Information and the likely responses are Computer Science, Mathematics, and Statistics. DMS is an important source of funding for two of these three disciplines yet the current name manifests only one. The proposed new name of the Division,

Division of Mathematical and Statistical Sciences (MSS)

recognizes explicitly the two major disciplines served by the Division. Including both disciplines in the name would allow the Division to effectively leverage the combined resources and support of two very large communities, thus putting the Division in a better position to vie for future resources and be inclusive of the growing statistics community.

The Division hopes to get feedback from your group on the proposed name change, as well as any feedback that your group gathers from the mathematical and statistical communities. Following is some background information that you and the community may find useful. Please do not hesitate to contact me if more is desired.

Big Data:

Big data provide big opportunities for mathematical and statistical sciences. It is an exciting time for our Division. In his FY12 budget roll-out speech NSF Director Dr. Subra Suresh referred to the "era of data and observation." The NSF 2011-2016 Strategic Plan notes that "The revolution in information and communication technologies is another major factor influencing the conduct of 21st century research. New cyber tools for collecting, analyzing, communicating, and storing information are transforming the conduct of research and learning. One aspect of the information technology revolution is the `DATA DELUGE,' shorthand for the emergence of massive amounts of data and the changing capacity of scientists and engineers to maintain and analyze it." Extracting useful knowledge from the deluge of data is critical to the scientific successes of the future. Data-intensive research will drive many of the major scientific breakthroughs in the coming decades. There is a long-term need for research and workforce development in computational and data-enabled sciences. Statistics is broadly recognized as

a data-centric discipline, thus having it in the Division's name as proposed would be advantageous whenever "Big Data" and data-sciences investments are discussed internally and externally.

I want to emphasize that the primary objective of the name change is to build a broader base from which to attract new funds. We expect the new resources to benefit all core programs, and do not envision reducing funding for core areas of mathematics and statistics. The latter are essential and the investment in fundamental research in core disciplines continues to be a priority. Computational and Data-Enabled Science and Engineering research and other initiatives provide more opportunities for mathematicians and statisticians to collaborate as co-investigators in tackling new challenges.

A Bigger Community:

The spectrum of statistical sciences is highly varied, especially in light of its connections to areas such as biostatistics, various informatics, analytics, data mining, industrial statistics, federal statistics, survey methodology, applied statistics, and research methodology more generally, that are supported by NSF within and outside of our Division. The progression and the culture of statistics do not justify its being viewed as one of the mathematical sciences; there is common ground between the communities but it is their differences that make their union so compelling and formidable when positioning for funding in a data-centric environment. Statistical sciences are inherently multidisciplinary and proposed explicit inclusion of "statistical sciences" in the name of our Division will also facilitate collaborations among other divisions at NSF.

In summary, the proposed new name would put our Division in a much better position to vie for new resources in this era of big data. It emphasizes the union of two large but different communities. The proposed new name would help increase resources for ALL core programs, keep the communities united, and thus is a win-win for both communities. I want to emphasize again that, as the Division Director, my goal is to enhance the resources to our Division and ensure that any new resources benefit all of our programs.

Finally, the proposed name change would make the Division better able to attract new resources in areas such as sustainability, energy, massive and complex data, economic development, health, environment and security, and provide new opportunities for collaborations among mathematicians and statisticians, and with other domain sciences and engineering. Such collaborations and unity of the two communities would be important for the future discoveries and for future resources for innovation.

I look forward to feedback on the proposal from your group, including any other input you might gather.

Sincerely,

Sastry G. Pantula, Division Director, DMS/NSF

Dear IMS Members:

I am writing concerning an important matter that is likely to be of particular interest to our US-based membership, and that may also be of interest to other IMS members.

The Director of the Division of Mathematical Sciences (DMS) at the US National Science Foundation (NSF), Dr. Sastry Pantula, has proposed changing the name of the Division to the Division of Mathematical and Statistical Sciences. I have posted a letter from Dr. Pantula, which includes his explanation of the proposal and rationale for it. The letter is addressed to a subcommittee of NSF's Mathematical and Physical Sciences Advisory Committee (MPSAC), which has asked various professional societies to collect and provide them with feedback on the proposal. You can view this letter here:
http://imstat.org/pantulaletter10_6_11.pdf

After learning of this proposal a few weeks ago, and while waiting for a statement from the DMS Director to accompany a call for comment from our membership-at-large, the IMS Presidents (current, past and elect) have already received comments from some members who have heard about the proposal. It is apparent from these comments that there is a variety of opinions amongst our membership, involving a range of levels of support or concern.

To gain a good impression of the views of all interested members, and in order to provide the requested feedback to the NSF MPSAC, I am writing to encourage your discussion and commentary on the proposal.

Please submit your views and comments on or before November 30, 2011, to
dmsnamechange@imstat.org

It is planned to have a small committee of former IMS Presidents to review the comments received and to prepare a summary of the comments.
This summary will be forwarded to the NSF MPSAC and posted on the IMS web page.
The summary will not reveal the identities of respondents.
However, it will be helpful to the committee if, in writing a comment, members indicate their role as an NSF DMS stakeholder.

The IMS looks forward to receiving your input on this important topic.

Yours sincerely,

Ruth Williams
President
Institute of Mathematical Statistics
