

## Make the Voice of Mathematicians Heard

As a mathematician and U.S. congressman, I am honored to be invited to write to mathematicians around the country in the *Notices* "Opinion" column. Your work has meaning and purpose and affects people's lives on a daily basis. Mathematics plays a critical role in telecommunications, medicine, understanding space, modeling thousands of mechanical and electrical processes, neuroscience, and much more. Your profession is both ancient and noble, and I hope that your work inspires the next generation of mathematicians to carry on the tradition of developing great mathematics. That is why it is so important that we come together to support the field of mathematics, raising awareness of the power of mathematics not only within our ranks but among the general public and politicians in Washington, D.C., and inspiring the next generations of mathematicians.

In order to maintain and grow the field of mathematics, inspiration must filter down to colleges, high schools, and elementary schools. You understand clearly that by the time someone is a junior or senior in high school, if they don't already have a solid background in mathematics, they will be at a severe disadvantage with regard to any career in science or engineering.

Not only is your theoretical work important, but our society will continue to need the tools and insights developed in the mathematical sciences. The challenges that humanity faces are daunting. Global warming, cyber attacks, the availability of fresh water and arable land, microbial threats, global financial stability, resource depletion, and nuclear conflicts are serious issues we're facing right now. Each of these threats can be better understood, and therefore better managed, with mathematical tools. There are commendable efforts in place, such as Mathematics for Planet Earth, that attempt to focus on some of these large problems. For many decades there was a trend of mathematics moving away from possible applications towards pure mathematics, resulting in some very beautiful theory. Now we see these fields applied in helpful ways in the real world. It is important that we apply these great theories to understand and manage our problems and to continue making efforts to develop new mathematical languages specifically to understand the challenges we as a society face.

We all know that achieving these goals and investing in mathematics research don't come free, and the community will not continue to innovate without a concerted effort to make sure that the field of mathematics remains a priority for institutions that support research. In the United States, money for mathematical research predominantly comes from the National Science Foundation (NSF) and is then conducted at public and private universities and other

institutions. There are some corporate dollars that fund mathematical research, and some money comes from private donations. Most mathematicians rely on these institutions for their livelihoods, pausing only to consider the source of this funding as it relates to their own research projects. It's really in the nature of most mathematicians not to worry about such issues and focus on their work. This is unfortunate, because mathematicians have significant prestige in our society, and a little involvement will go a long way to ensure that funding continues. The nation and much of the world are facing very tough choices of how to allocate public monies, which is why we must take the time to make sure our community is well represented.

There are ways to show your support for the NSF and other programs so that they will be noted in Washington. It is important to develop relationships with your members of Congress. You can arrange regular visits to their home offices and have a large organized group of mathematicians visit Washington on a yearly basis. Get to know your representative and senators personally by visiting their offices. I encourage you to keep them abreast of some of your research projects and give them updates once in a while. I wish you all the best and hope you are successful in developing theory in 2013.

—Jerry McNerney  
U.S. Representative  
California's 9th Congressional District