

On Transitions, Traditions, and a Mathematical Trend

It is an honor to succeed Doug Arnold as president of SIAM. I became a member as a graduate student thirty years ago and have every hope of lasting another thirty!

As years pass and organizations grow, initiatives that seem tentative at first become established. Thinking back to the 1990s, I remember discussions of the idea of posting SIAM journal papers on the World Wide Web, in addition to the standard print format. SIAM wasn't the first to do this (our first electronic issues were posted in 1997), but we were earlier than many, and I remember the excitement and also nervousness with which we took that step. Nowadays, as my library is throwing away many of its journal hardcopies and yours may be doing the same, it all seems so natural and inevitable.

FROM THE SIAM PRESIDENT

By Nick Trefethen

This month marks another transition as SIAM launches its e-books program. Discussion and planning go back quite a while, and in recent months the activity has accelerated as hundreds of SIAM titles have been prepared for electronic access in PDF format. The launch at the end of January will offer more than 200 titles, with a similar number (most of SIAM's catalog) to follow in a few months. Initially, the e-books will be offered as a package to libraries and other institutions; individual purchase of individual titles is coming before too long.

Who can predict? Will books follow the path of journals, with hardcopies losing their importance? Or will printed books remain big while e-books take a place alongside them? How will students be reading a few years from now? Nobody knows the answers, but we can be sure of one thing: SIAM is not alone in negotiating these changes.

In these columns I will not be able to resist the temptation to muse on mathematical matters as well as organizational ones. Let me raise one question now that is on my mind. In almost all the work I do, complex variables play a role. For example, if I want to know how fast a series converges, I ask how smooth the function is. Is it analytic? If so, the convergence will be exponential. What's the constant in that exponential? It depends on where the singularities are in the complex plane.

I've noticed that many students are unfamiliar with this kind of reasoning. Some of them are unsure of what it means for a function to be analytic and how this property differs from being infinitely differentiable. (Analytic means having Taylor series that converge around each point.) In fact, I think the general level of awareness of complex variables among mathematicians is lower today than it was fifty years ago.

What do you think, is this the trend? Is it just one of those things to be accepted, as new subjects elbow aside older ones? Rather than pretend to neutrality, let me tell you what I think: I believe that questions of convergence and representation of functions are at the heart of applied mathematics; that you can't understand those questions without understanding analyticity; and that complex variables need more emphasis in our curriculums.

A remarkable publication has just appeared: "Complex Beauties," a calendar for 2011 by Elias Wegert and Gunter Semmler of the Freiberg University of Mining and Technology in Germany (www.mathcalendar.net). Each month features a color image of a complex analytic function that will dazzle you, together with a brief story of a relevant mathematician. From Taylor and his series to Riemann and his zeta function, this work can deepen anyone's love of mathematics.

On SIAM matters as on philosophical ones, I would be glad to hear your thoughts at trefethen@maths.ox.ac.uk.



In 1995, SIAM tentatively added a "community lecture" to the Annual Meeting program. Advertised to students and the public in the surrounding area, and of course to meeting participants, that first lecture ("If Copernicus Had a Computer," by Charlie Van Loan) drew a large and enthusiastic audience. Renamed the I.E. Block Community Lecture in 1997, the lecture has been a high point of many meetings—most recently in Pittsburgh at the 2010 SIAM Annual Meeting, where Dmitri Tymoczko of Princeton University, shown here (right) with then-SIAM president-elect Nick Trefethen, appealed to both the mathematical and the musical sides of many in the SIAM community with a talk titled "The Geometry of Music." (A tape of the talk can be accessed from <http://www.siam.org/meetings/an10/roundup.php>.)