Letters to the Editor

Visibility of Asian Americans in Mathematics

During the Madrid ICM-2006, there was considerable popular press coverage on a focal topic leading to it, namely the Poincaré Conjecture. Among the coverage is an August 28 article in the *New Yorker* by Nasar and Gruber. It was a much talked-about piece of publicity on mathematics at many dinner tables. Jackson's "Conjectures No More?" in your September issue of the *Notices* followed.

After reading these two articles in parallel, it is then particularly gratifying to read Goel's article on "An Invisible Minority" concerned with the need for Asian American mathematicians in the context of our social political environment. There are many reasons for it being gratifying.

A difference between Jackson's piece and the Nasar-Gruber piece is in the latter adding the spice of S. T. Yau being "Chern's successor" or "Chern's heir". While some mathematicians may interpret this plot in terms of Chern and Yau's professional accomplishment, due to the political incarnation of "heir" and "successor" the *New Yorker* actually creates for its general readers the plot of a political power struggle. We find the addition of this plot being a way to stereotype Asian Americans in the shadow of a politburo. It is particularly ironic that when Yau has the courage to speak openly against corruption in China in the past year, he never got the usual kudos in the American popular press, and is instead portrayed as an aggressor. It brings us to Goel's article concerned with the challenge facing all Asian mathematicians in the USA. As people with South Asia origins are subjected to the stereotype of a terrorist, people of East Asia origins are subjected to the stereotype of a communist. Both are taboos in the American society.

Yau's achievement in mathematics is well known within the mathematics community. It is equally well known that he has successfully produced nearly 50 Ph.D. students in mathematics and has many collaborators across the globe. Perhaps, it is less well known that he has donated personal funds to establish scholarships for mathematics students, has donated tens of thousands of books to educational institutions, has helped raise tens of millions of dollars to promote mathematics education and research, and has raised funds to promote interaction among scientists across subject boundaries and national borders. For the Asian Americans below the glass ceiling, it is disheartening to see such a successful and dedicated academic being subjected to the smear of popular press. For the Asian American scientists and their children negotiating their ways through the minority situation in our political system but excluded outside the "under-represented" designation, especially in academic institutions, Goel's piece provides a much needed, timely and refreshing perspective.

—Bun Wong and Yat Sun Poon
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Mathematical Community Should Police Itself

I would like to comment on recent events revolving about the awarding of the Fields Medal to Grigory Perelman, and the article in the *New Yorker* magazine about it.

I have always felt proud to be a member of a professional community that embraces talent, with all the human diversity that can accompany it. As mathematicians, we have an extraordinary tolerance of eccentricity, and I truly believe that many individuals who might do badly in a different social milieu find acceptance and thrive in the mathematics community. Sylvia Nasar's book, *A Beautiful Mind*, describes this in rich detail. Reading it, I was proud of our decency as a community.

But there is another, and a darker, side to the same phenomenon, i.e. a tolerance for bad behavior, especially when the individuals whose actions might be questioned are highly talented. To put it plainly, we do not police ourselves very well.

I focus on one small part of the complex array of matters discussed in the Nasar-Gruber article, namely the manner in which the normal peer review process, essential to the integrity of the profession, was tossed out the window when the paper of Cao and Zhu was accepted for publication in the *Asian Journal of Mathematics* (AJM). The submitted paper appears to be mainly an exposition of Perelman's work on the Geometrization Conjecture, however it asserted that there were gaps in Perelman's proof, which the authors filled. That was a serious assertion. The decision to publish the Cao-Zhu paper was made by the two editors-in-chief of the AJM, without consultation with the journal's twenty-six member editorial board, even though it was known that the authors had deep personal attachments to the editors-in-chief. The members of the editorial board of the AJM were notified of the pending publication a few days before the journal issue appeared, but were not shown the paper, an abstract, or reports by independent referees. Their names continue to appear on the journal cover, so one must assume that they approved that process. Thus those who were in a position to say "wait a minute, we will not let our names be used in this way" remained silent. This was just one of the many moments in this sad tale when there were no whistle-blowers. As a result the entire profession has received a very public and very bad black mark.

—Joan S. Birman
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Poincaré's Vision

The recent proof by Hamilton and Perelman of the celebrated 3-d Poincaré conjecture has occasioned a dramatic upsurge of controversies concerning priorities and individual personalities.

We want to bring to the reader's attention a specific aspect which has been neglected in this discussion. Namely, the connection of this proof with the vision of Poincaré. Up to now the unsuccessful attempts to prove

the conjecture had relied on methods of topology. The Hamilton-Perelman proof rests upon two essential ingredients:

1) The study of the deformation theory of these manifolds under a nonlinear evolution equation, namely the Ricci flow.

2) The careful control of Ricci flows based on a priori estimates for this PDE and Thurston's decomposition.

These two ingredients are closely linked to some of the earlier works of Poincaré. In particular Poincaré had a vivid insight of the role of PDEs within pure mathematics. This is illustrated very sharply in the introduction to Poincaré's paper in the *Amer. J. Math.*, vol. 12 (1890), in which Poincaré sets forth the foundations of the modern theory of PDEs. We quote this section in our English translation.

After listing some outstanding examples of PDEs in mathematical physics (Laplace, heat and wave equations) he writes:

"All these problems have a family resemblance that one cannot disregard. One should therefore expect to find a large number of common properties. Unfortunately, the first common property is their extreme difficulty. Not only can one not resolve these equations in explicit form, but it is only at the price of great effort that one can prove their solvability rigorously.

"Is this demonstration necessary? Most physicists wouldn't care less. Experience does not permit one to doubt the possibility of electric equilibrium. One cannot doubt, it seems, the solvability of these equations which express this equilibrium.

"The differential equations which physical phenomena obey have often been established with lack of rigor. One can regard these only as approximations.[…]. Thus absolute rigor has limited interest. It seems often that there is no place for such rigor if it involves too much effort.

"Nevertheless, each time I can, I aim at absolute rigor for two reasons. In the first place, it is always hard for a geometer to consider a problem without resolving it completely. In the second place, these equations that I will study are susceptible, not only to physical applications, but also to analytical applications. It is using the existence theory of the Dirichlet problem that Riemann founded his magnificent theory of Abelian functions. Since then, other geometers have made important applications of the same principle to the most fundamental parts of pure analysis. Is it still permitted to content oneself with a demi-rigor? And who will say that the other problems of mathematical physics will not, one day, be called to play in analysis a considerable role, as has been the case of the most elementary of them?"

—Haïm Brezis, Paris VI and Rutgers University
—Felix E. Browder, Rutgers University
—Louis Nirenberg, Courant Institute

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Correction

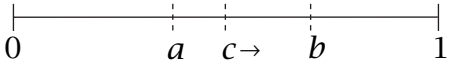
The October 2006 issue of the *Notices*, page 1007, carried a Letter to the Editor from William C. Waterhouse that mentioned the famous "taxicab number" 1729. Due to an editing error, the factorization of 1729 was given as $7 \cdot 1 \cdot 19$ rather than $7 \cdot 13 \cdot 19$. The *Notices* regrets the error.

—Allyn Jackson

Correction

In the diagram on the lower right of p. 1316 of the Brams, Jones, and Klamler article, "Better Ways To Cut a Cake" (December 2006), the c' should have been $c\rightarrow$ (see revised figure below), showing the movement of c rightward that is described in the text just above the diagram.

—Steven J. Brams, Michael A. Jones, and Christian Klamler



Correction

The December issue of the *Notices* carried an article abut the 2006 International Congress of Mathematicians, at which the new logo of the International Mathematical Union was unveiled. The logo was displayed in the article (page 1338), and the caption gave the wrong affiliation for the creator of the logo, John Sullivan. Sullivan is at the Technische Universität Berlin, not at the Humboldt Universität.

—Allyn Jackson

Submitting Letters to the Editor

The *Notices* invites readers to submit letters and opinion pieces on topics related to mathematics. Electronic submissions are preferred (`notices-letters@ams.org`); see the masthead for postal mail addresses. Opinion pieces are usually one printed page in length (about 800 words). Letters are normally less than one page long, and shorter letters are preferred.