

Panel “Mathematics Is For All”

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ABSTRACT

As mathematicians we believe that mathematics is useful, beautiful, and necessary in order to address the scientific problems that society confronts. We would all like to have a citizenry that is mathematically literate. Yet, many of us complain about the small number of students who choose to study mathematics in college or to choose mathematics for their major. Interestingly, there have been considerable efforts at increasing these small numbers and these efforts have been directed at sections of the population that have not historically participated in the mathematical enterprise. The purpose of this panel is to learn about these efforts and how to integrate these efforts into the culture of a university mathematics department.

Every country has “minority” populations that do not participate fully in the mathematical enterprise in that country. Minority populations oftentimes have to overcome more barriers than the majority population, barriers that stand in the way of the full expression of latent mathematical ability. These barriers take on many forms. Preparatory schools may not fully prepare students for the rigors of a university curriculum. The lack of financial resources is a common impediment. Social structures may prohibit the consideration of a mathematical career. The lack of knowledge about mathematical careers certainly plays a factor. Perhaps even the organizational structure of the university should factor in. One of the goals of this panel is to explore these impediments.

Concern for these under-represented groups sometimes results in special efforts or programs to address this inequity. These special efforts and programs are designed to encourage minority populations to gain access to mathematical careers. In many instances, minority mathematicians have led the efforts and have devoted a considerable portion of their careers in an effort to provide better access to the under-served. The mathematical community can learn a great deal about increasing access to mathematics by looking at minority programs. Efforts aimed at improving access for minority populations can also increase access for all students, and that is another goal of this panel.

A common dictum in the United States is that “Mathematics is for all”. It is the goal of many pre-college programs in the U.S. to have all students complete a solid program of study in mathematics, one that will prepare them to pursue a mathematically based career in college. When we look at the professorate in mathematics departments at our research universities in the U.S., it is abundantly clear that the professorate is not representative of the U.S. population. The phrase, “mathematics is for all”, does not appear to apply at the level of university professor of mathematics. The percentage of women is nowhere near equity. Historically, there were three main minority groups in the U.S., African-Americans, Mexican-Americans and Native Americans. These minority populations are almost invisible among the professorate at research universities in the U.S.

This panel will provide the opportunity to learn about these special efforts to increase the participation of minority populations in mathematics. Panelists will be invited to provide examples of the work that they have done to increase the accessibility, for minority groups in their countries, of mathematics and mathematics-based careers. Examples will be chosen that will give full evidence that these efforts have a broader appeal and, when incorporated into the way a mathematics department functions, will serve to increase the interest in mathematics in more students, not just minority students.

Members of the Panel¹:

- **Megan Clark**, Centre for Mathematics and Science Education School of Mathematical and Computing Sciences Victoria University, Wellington, New Zealand
- **Cyril Julie**, School of Science and Mathematics Education, University of the Western Cape, South Africa
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¹ Members of the panel at the time of publication (April 2002).