
For Your Information

Call for Nominations for Balaguer Prize

Each year the Institut d'Estudis Catalans presents the Ferran Sunyer i Balaguer Prize. This international award recognizes an outstanding mathematical monograph presenting the latest developments in an active area of mathematics research. Ferran Sunyer i Balaguer (1912–1967) was a self-taught Catalan mathematician who, in spite of a serious physical disability, was very active in research in classical analysis and achieved international recognition.

The competition for the prize is open to all mathematicians. Monographs submitted for the prize must be original, written in English, and at least 150 pages long. It must be in an area in which the applicant has made important contributions. The winner will be chosen by a scientific committee consisting of: Gerhard Frey (Universität Essen), Joan Girbau (Universitat Autònoma de Barcelona), Paul Malliavin (Université de Paris VI), Joseph Oesterlé (Université de Paris VI), and Alan Weinstein (University of California, Berkeley).

The prize of 1,800,000 pesetas is provided by the Ferran Sunyer i Balaguer Foundation. The winning monograph will be published in Birkhäuser-Verlag's series Progress in Mathematics, subject to the usual regulations concerning copyright and author's rights.

Monographs, preferably typeset in $\text{T}_\text{E}\text{X}$, should be sent before **December 15, 1995**, to: Institut d'Estudis Catalans, Carme, 47, 08001 Barcelona, Spain; e-mail crm@crm.es. The name of the prizewinner will be announced in Barcelona in April 1996.

—*from Institut d'Estudis Catalans Announcement*

New BMS Publications

The Board on Mathematical Sciences (BMS) of the National Research Council (NRC) has just released two timely publications: the report *Mathematical Challenges from Theoretical/Computational Chemistry*, and the book *Calculating the Secrets of Life: Applications of the Mathematical Sciences in Molecular Biology*. These are the latest in a series of BMS publications that describe connections be-

tween research in the mathematical sciences and such areas as materials science, physical oceanography, nonlinear optics, digital image analysis, acoustics and electromagnetics, robotic control, and dynamic biomedical imaging.

Computational methods are rapidly becoming major tools of theoretical, pharmaceutical, biological, and materials chemists. Accordingly, the mathematical models and numerical analysis that underlie these methods have an increasingly important and direct role to play in many areas of chemistry. *Mathematical Challenges from Theoretical/Computational Chemistry* is the 142-page report growing out of a joint project of the BMS and the Board on Chemical Sciences and Technology in which a cross-disciplinary NRC study committee explored the research interface between the mathematical sciences and computational chemistry. Aimed at nonspecialists, it documents prominent examples of past successful cross-fertilizations between the fields and explores mathematical research opportunities in a broad range of chemical research frontiers. A number of sidebars and an extensive glossary make the report accessible to a variety of readers. The report also discusses cultural differences between the two fields and makes recommendations for overcoming those differences and generally promoting this interdisciplinary work. As the report states: "In scanning the research needs of theoretical/computational chemistry, the committee found opportunities for synergistic research with almost the entire mathematical sciences community, where that term is used in its broadest sense to include core and applied mathematicians, statisticians, operations researchers, and theoretical computer scientists in academe, government laboratories, and industry. The common denominator shared by mathematical scientists who have contributed or could contribute to progress in chemistry is not a particular background; rather, it is a willingness to truly collaborate."

The BMS convened the NRC Committee on the Mathematical Sciences in Genome and Protein Structure Research to determine whether increased interaction was needed between the mathematical sciences and molecular biology. The committee unanimously agreed that it was needed and that the major barrier to such interaction was communication: mathematical scientists interested in molecular biology found that learning about this new and rapidly growing field was a difficult obstacle. The committee

felt it could best contribute to improving the situation by providing an introduction to the interface between the two fields. The result is the 297-page book *Calculating the Secrets of Life: Applications of the Mathematical Sciences in Molecular Biology*, edited by committee chair Eric Lander and committee member Michael Waterman. After an expository overview chapter, the eight remaining chapters, each by a different author, describe biological problems to which the mathematical sciences have made significant contributions. Topics include the use of: probabilistic models and algorithms to map genomes; combinatorial comparison algorithms to detect biosequence similarities; extremal statistics to probe evolutionary origin; stochastic processes to measure evolutionary rate; geometry, topology and mechanics to study DNA; statistical mechanics to predict DNA conformational changes; topology to infer enzyme action; and statistical, pattern matching, and combinatorial methods to predict protein structure for the protein-folding problem. This book gives evidence that a character change may be happening for molecular biology at the end of the twentieth century that is similar to the one chemistry went through at the end of the nineteenth century: a quantitative and mathematical foundation is starting to be established.

The BMS has sent a free copy of each of these two publications to the chair of each U.S. Ph.D. granting department in the mathematical sciences. Additional copies can be ordered from National Academy Press, 2101 Constitution Avenue, NW, Washington, DC 20418; telephone 800-624-6242; fax 202-334-2451. One can also obtain ordering information on the World Wide Web page of the National Academy of Sciences, for which the URL is <http://www.nas.edu>.

—*from BMS Announcement*

Mathematics Awareness Week 1995

The Joint Policy Board for Mathematics—the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics—would like to thank the sponsors of Mathematics Awareness Week 1995: the U.S. Army Research Office, Oxford University Press (with offices in New York and London), and Springer-Verlag (Textbooks in Mathematical Sciences—TIMS—a new undergraduate text series).

Please send news clippings from your Mathematics Awareness Week activities to: 1529 Eighteenth St., NW, Washington, DC 20036.

—*MAW Committee*