

**PRESS RELEASE
WINNERS ANNOUNCED
2002/1422 KING FAISAL INTERNATIONAL PRIZE
FOR
SCIENCE**

Topic: MATHEMATICS

Riyadh, 27 November 2001. HRH Prince Khaled Al-Faisal, Director General of King Faisal Foundation, tonight announced the winners of the King Faisal international. For their outstanding work in the field of mathematics, the prize for Science is jointly awarded to:

Professor Yuri I. Manin

Director, Max-Planck Institute for Mathematics, Bonn, Germany

Dr. Peter Williston Shor

AT&T Shannon Research Laboratory, USA

Professor Manin has been a towering figure in mathematics for the last four decades. His work extends from the most abstract field of number theory to the most practical, dealing with the establishment of secure mathematical foundations for present-day physical theories explaining the structure of matter and the universe. In this way, the work of Professor Manin is a beautiful illustration of the famous dictum of the “unreasonable” effectiveness of mathematics to understand nature. It is also a remarkable instance of the fruitful, and mutually beneficial, interaction of mathematics and physics whereby physicists venture into the unknown in their quest for the study of nature. Mathematicians then convert often shaky theoretical structures into a solid conceptual domain and a beautiful coherent theory. Professor Manin is among those eminent mathematicians who treasure their abstract research but also devote their attention to its relevance to the study of nature.

Another exponent of this interaction between mathematics and physics is Dr. Shor, an outstanding scientist in the field of computer science. Not only did he point out links between the theory of numbers and that of quantum computers but he developed intellectual tools to show that quantum computing can tackle some exceedingly difficult problems much more quickly than contemporary computers. Among these problems is that of

resolving a very great integral number into its primary factors, the so-called factoring problem. This difficulty is the basis of the coding systems used to ensure that eavesdroppers cannot intrude on communications.