

## Notices of the AMS July/August 1994

### Laczkovich and Ratner receive the Ostrowski Prize.

On July 8, 1994, in Basel, Switzerland, the 1993 Ostrowski Prizes were awarded to *Miklos Laczkovich* of the Lorand Eötvös University, Budapest, and to *Marina Ratner* of the University of California, Berkeley. The prizes of 50'000 Swiss francs each recognize outstanding mathematical achievements in the previous five years. Presenting the prizes was Janos Aczel of the University of Waterloo, president of the Ostrowski Prize jury for 1992-1994.

#### **Miklos Laczkovich**

One characteristic of the mathematical work of Miklos Laczkovich is that it attacks well-known problems which for a long time resisted efforts at solution. In doing so he has discovered unexpected connections of the problem to other, apparently quite distant fields of mathematics then solved both the translated and the original problem by unrelenting work and further ingenious insights.

For instance, he solved a problem of Kemperman on functional inequalities for real functions, open for more than ten years, by reducing it to a problem on diophantic approximations. Another example is his solution of a problem of Daroczy and Redheffer on the order at infinity of solutions of certain recursions by finding oscillating solutions of "averaging type" integral equations.

His best known achievement is, of course, the solution of Tarski's 1925 "circle squaring" problem. Again Laczkovich applied deep ideas on uniform distribution of sequences in number theory to prove that the circle and the square are equidecomposable and moreover that this can be established by translations only. The most surprising result goes even beyond Tarski's conjecture. (For a short description and appreciation of the proof see the paper by Richard J. Gardner and Stan Wagon in the December 1989 issue of the *Notices*, pages 1338-1343).

Miklos Laczkovich received his M.Sc. in 1971 and his Ph.D. in 1974 from the Lorand Eötvös University. He also received a candidate degree (1980) and a D.Sc. (1992) from the Hungarian Academy of Sciences, to which he was elected as a corresponding member in 1983. A professor of mathematics at Lorand Eötvös University, Laczkovich has held visiting positions at the University of Naples (1978), University of Waterloo (1983), Michigan State University (1983), University of California at Santa Barbara (1984), St. Olaf College (1986), Mathematical Institute of the Hungarian Academy of Sciences (1988-1989), and University College London (1992). He has presented lectures at various conferences around the world. He was invited speaker at the first European Congress of Mathematics, held in Paris in 1992.

## **Marina Ratner**

Marina Ratner created a deep and rather complete theory concerning the dynamics of actions of subgroups of Lie groups on homogeneous spaces of these groups and also discovered connections to ergodic theory and number theory. She proved the “topological Raghunatha conjecture” through the “measure theoretic Raghunatha conjecture” which she introduced and then generalized. Along the way, she proved that for a connected Lie group  $G$ , all of its closed subgroups, generated by elements  $g$  of  $G$  are strictly measure rigid under certain conditions on the eigenvalues. The main tool of her ingenious and technically difficult proof is Birkhoff’s ergodic theorem. Her work also led her to an  $S$ -arithmetic version of the Oppenheim conjecture (the original conjecture was proved by Margulis, using  $p$ -adic techniques).

Marina Ratner received her M.A. in 1961 from Moscow State University and for several years worked in Kolmogorov’s applied statistics group, as well as in his special school for gifted high school students. Her main mathematical influences at that time were A. N. Kolmogorov and Ya. G. Sinai. In 1965, she returned to Moscow State University, finishing her doctorate in 1969 under the supervision of Sinai. She was an assistant at the High Technical Engineering School in Moscow (1969-1970), a lecturer at the Hebrew University of Jerusalem (1971-1974), and a senior teacher at the Pre-academic school of the Hebrew University of Jerusalem (1974-1975). She came to the University of California at Berkeley in 1975 as an acting assistant professor and rose to her present rank of professor in 1982. Ratner was an Alfred P. Sloan Research Fellow (1977-1979), a Miller Research Professor at the University of California at Berkeley (1985-1986), and a John Simon Guggenheim Fellow (1987-1988). In 1992 she was elected to the American Academy of Arts and Sciences and the following year to the National Academy of Sciences (NAS). This year she received the J. Carty Award from the NAS. Ratner will present a plenary lecture at the International Congress of Mathematicians in Zürich in August 1994.

Janos Aczel