# George Lusztig Awarded 1985 Cole Prize

The Frank Nelson Cole Prize in Algebra is awarded every five years for a notable research memoir in algebra which has appeared during the previous five years. This prize, as well as the Frank Nelson Cole Prize in Number Theory, was founded in honor of Professor Frank Nelson Cole on the occasion of his retirement as secretary of the American Mathematical Society after twenty-five years and as editor-in-chief of the Bulletin for twenty-one years. The original fund was donated by Professor Cole from moneys presented to him on his retirement. It has been augmented by contributions from members of the Society, including a gift made in 1929 by Charles A. Cole, Professor Cole's son, which more than doubled the size of the fund. In recent years, the Cole Prizes have been augmented by awards from the Leroy P. Steele Fund and currently amount to $4,000.

The Twenty-First Cole Prize was awarded to GEORGE LUSZTIG, of the Massachusetts Institute of Technology, at the Society's ninety-first Annual Meeting in Anaheim. The prize was awarded by the Council of the American Mathematical Society on the recommendation of a selection committee consisting of Michael Aschbacher (Chairman), Melvin Hochster, and Bhama Srinivasan.

The text below includes the Committee's citation, the recipient's response on presentation of the award, and a brief biographical sketch of the recipient.

### Citation

To GEORGE LUSZTIG for his fundamental work on the representation theory of finite groups of Lie type. In particular, it is awarded for his contributions to the classification of the irreducible representations in characteristic zero of the groups of rational points of reductive groups over finite fields, appearing in *Characters of Reductive Groups Over Finite Fields*, Annals of Mathematics Studies **107**, Princeton University Press, 1984.

### Response

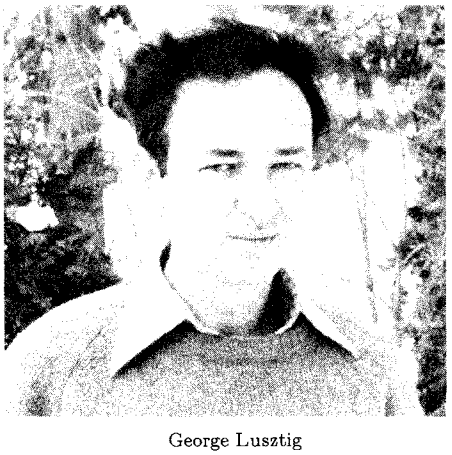
I feel very honored to receive the Cole Prize. My book which has been cited contains the classification of the complex irreducible representations of a reductive group $G(F_q)$ with connected centre over a finite field $F_q$ and explicit formulas for their character at all regular semisimple elements. This completes a work done about ten years ago jointly with Deligne in which we constructed almost all representations of $G(F_q)$. After the book was written, I have removed the restriction on the centre. What has emerged is that the classification of representations is simpler than that of conjugacy classes; for instance, it is independent of characteristic. The combinatorics which enters in the classification of degenerate representations is closely related to that which enters in the classification of primitive ideals in enveloping algebras and to that in my work with Kazhdan on singularities of Schubert varieties. For the character values at non-semisimple elements one has quite a bit of information and it now seems reasonable to hope that the full character table of $G(F_q)$ will be determined in the not too distant future.

### Biographical Sketch

GEORGE LUSZTIG was born May 20, 1946, in Timişoara, Romania. He received a Master's degree from the University of Bucharest in 1968, and both M.A. and Ph.D. degrees from Princeton University in 1971. From 1969 to 1971, Lusztig was a visiting member at the Institute for Advanced Study in Princeton, New Jersey. He has also been a research fellow, lecturer, and professor at the University of Warwick, in Coventry, England (1971–1978). In 1978 he became professor of mathematics at the Massachusetts Institute of Technology.

Lusztig has given several AMS addresses: at the 1977 Summer Research Institute on Automorphic Forms, Representations and $L$-Functions; at the Symposium on the Geometry of the Laplace Operator in Hawaii (March 1979); and at the Special Session on Cohomology and Representations of Algebraic Groups in San Antonio (January 1980, AMS Annual Meeting). He also gave an invited address in Philadelphia in April 1980. He has been an invited speaker at the International Congresses of Mathematicians in 1974 and 1983.

Lusztig received the Junior Berwick Prize in 1977 from the London Mathematical Society. He was a Guggenheim Foundation Fellow in 1982 and was elected a Fellow of the Royal Society in 1983.



George Lusztig