THE HINDU
Online edition of India's National Newspaper
Monday, July 10, 2000

Computer proofs of mathematical identities

``One of the most fascinating developments in recent years is the emergence of computer proofs of mathematical identities'' said Prof. Krishnaswami Alladi, Chairman, Mathematics Department of the University of Florida, who is now in Chennai, after lecturing in Austria and Hungary. Prof. Alladi visited the Research Institute of Symbolic Computation (RISC) in Linz, Austria, where Prof. Peter Paule, Vice-Chairman of RISC, and Dr. Axel Riese, have developed a computer algebra package to prove the important three parameter identity for the Goltritz theorem, originally due to Prof. Alladi, Prof. George Andrews (Penn. State University), and Prof. Basil Gordon (UCLA) in 1995. Dr. Riese had presented this computer proof at the May 2000 Q-series conference in Tempe, Arizona.

At Linz, Prof. Alladi spoke on the recent breakthrough he had achieved in collaboration with Prof. George Andrews and Prof. Alexander Berokovich, namely, the discovery and mathematical proof of a four parameter extension of the three parameter Gilnitz identity. Dr. Paule and Dr. Riese are in the process of developing a computer software to prove the four parameter identity, but this may take some time, said Prof. Alladi.

The revolutionary idea the computers could be used to prove, not just verify, mathematical identities, is due to Prof. Herb Wilf (University of Pennsylvania) and Prof. Doron Zeilberger (Temple University). Their technique, known as the W-Z method can be used to prove several discrete mathematical identities by means of recurrence relations generated by the computer. For this path breaking work, Prof. Wilf and Prof. Zeilberger were awarded the Leroy P. Steele Prize of the American Mathematical Society. The W-Z method has caused an explosion of research in the area of Symbolic computation.

``The fact that in a computer proof a certain identity is found does not make the original mathematical proof less interesting or important'', said Prof. Alladi. The mathematical proof often reveals algebraic structure underlying the identity.During his visit to Europe, Prof. Alladi also lectured at the University of Vienna, and gave a talk on his research on new weighted Rogers. Ramanujan partition theorems at an International Colloquium in Number Theory, in Debreen, Hungary.

Prof. Alladi will be in India till August 6 and will deliver lectures at the Raman Institute and the T.I.F.R. Centre in Bangalore, and at several educational institutions in the city.

Section : National
Previous : H.C. order set aside in rent control case
Next : Inflation falls

Front Page | National | Southern States | Other States | International | Opinion | Business | Sport | Entertainment | Miscellaneous | Features | Classifieds | Employment | Index | Home

---
