Prof. Jiping Zhang 's Curriculum Vitae

Name: Jiping Zhang

Present position: Professor of Mathematics, Peking University
Dean of the School of Mathematical Sciences,
Peking University
Vice President of the Chinese Mathematical Society

Born: July 11, 1958, Shanxi, China

Degrees: D.Phil., Peking University, China, 1987
M.Sc., Peking University, China, 1984
B.A., Shandong University, China, 1981

Research interests: Group representation theory and finite group theory

Professional experience:

Professor, Peking Univ., 1990－
Associate Professor, Peking Univ., 1988-1990
Visiting Scholar, University of Florida, USA, 1989-1990
Research Fellow, DMI, Ecole Normale Superieure, Paris, 1991-1993
Alexander von Humboldt research fellow, University of Mainz,1993-1994
Visiting Professor, University of Minnesota, USA, 1994-1995
Visiting Professor, Ohio State University, USA, 1995
Visiting Professor, Purdue University, USA, 1997
Visiting Professor, The Chinese Univ of Hong Kong 1999
Visiting Professor, Yale University, USA, 2001
Visiting Professor, Hong Kong University of Sciences and Technology 2004

Award and Grant

1993, Alexander von Humboldt Research Fellowship, Germany,
1996, Outstanding Young Scientist Fellowship, NSF of China,
1997, Young Scientist Prize of China,
1998, "Qiu Shi" Prize for Young scientists, Hong Kong
2000, "Cheung Kong" exceptional Professor, Lee Ka-Shing Foundation (Hong Kong)
and the Education Ministry of China.

Publications

1. Jiping Zhang, Finite groups all of whose p-blocks are of the highest defect, Journal of Algebra 118, 129-139 (1988).
2. Jiping Zhang, On the existance of defect zero blocks, Acta Mathematica Sinica Vol 30, 831-837 (1987)
3. Jiping Zhang, Complex linear groups of degree at most p-1, Contemporary Math. 82, 243-254 (1989).
4. Jiping Zhang, Finite groups all of whose elements of the same order are conjugate

in their automorphism groups, Journal of Algebra, 153,
22-36 (1993).
5. Jiping Zhang, p-Regular orbits and p-blocks of defect zero,
Communications in Algebra 21, 299-307 (1993).
6. H. Blau & Jiping Zhang, Finite linear groups with small degree,
Journal of Algebra, 159, 358-386 (1993).
7. Jiping Zhang, Vertices of simple modules and a conjecture of L. Puig,
Algebra Colloq. 1:2, 139-148 (1994).
8. Jiping Zhang, Sylow numbers of finite groups,
Journal of Algebra 176,111-123 (1995)
9. Jiping Zhang, Character degrees of finite solvable groups,
Group Theory, 57-68 Springer-Verlag Singapore, 1998.
10. Jiping Zhang, A note on character degrees of finite solvable groups
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Brief Introduction to Jiping Zhang's work

Jiping Zhang mainly works on finite groups and modular representation theory. He has published nearly 40 research papers and made substantial contributions on some important topics such as defect groups of blocks, finite linear groups and Puig's conjecture. He develop systematically the arithmetical theory of finite groups which is successfully applied to differential geometry and algebraic number theory and is very usful to solve some long standing open problems.

1. Defect groups of blocks.

When a given p-group D is a defect group for some block B is one the key problems in block theory. Zhang first introduces the strong radical p-subgroups and finds the necessary and sufficient conditions for a strong radical p-subgroups to be a defect groups. This is an important development in block theory and generalizes many basic results on defect-zero problems. As a corollary, it is proved that if a finite group G has an abelian Sylow p-subgroup then every maximal Sylow p-intersection of G is a defect group for some block. This is something surprising.

Also Zhang proved that for any prime p and any finite simple groups G of Lie type there exists in G at least one p-block of defect zero. This result is now widely used in the study of block theory. It is known when a finite simple group has a defect-zero p-block, but the problem is still very difficult for solvable groups. Zhang made an important step forward and solve the problem for finite groups of odd order. Following Zhang, a few people are now working on the problem with the hope to solve it.

Zhang was able to characterize the so-called full p-defective groups which generalize significantly the results of R. Brauer and M. Harris on groups with only one p -block (Note that the characterization of finite groups with only one p -block was a long-standing open problem posed by R. Brauer and was solved by M. Harris in 1985).

2. Finite linear groups: Brauer's problem 39

To determine the finite linear groups of lower dimension is of great importance in representation theory. By applying the classification of finite simple groups, Zhang was able to determine the finite linear group of dimension at most p where p is a prime dividing the order of the group. As a corollary, Brauer's problem 39 was solved positively. Also Zhang initial the study on the finite linear groups over finite fields, with Blau, he solved basically Brauer's problem 43. Now Blau and