Sukumar Das Adhikari

Research Summary:

For the particular group $\mathbf{Z}/n\mathbf{Z}$, certain weighted generalizations of some combinatorial group invariants were considered in some joint work with Y. G. Chen, J. B. Friedlander, S. V. Konyagin and F. Pappalardi and later with Purusottam Rath. Recently, in the joint work with Purusottam Rath, values of some of these constants were determined in special cases. These were further generalized in a joint work with Y. G. Chen where expected relations between these constants were established under certain conditions. These investigations were followed up in another recent work with R. Balasubramanian, F. Pappalardi and P. Rath.

Publications:

1. Sukumar Das Adhikari and Purusottam Rath, *Davenport constant with weights and some related questions* Integers, **6** paper A 30, (2006).

2. S. D. Adhikari and Y. G. Chen, *Davenport constant with weights and some related questions - II*, J. Combinatorial Theory, Ser. A, doi: 10.1016/j.jcta.2007.03.004 (2007).

3. Sukumar Das Adhikari and Purusottam Rath, *Zero-sum problems in combinatorial number theory*, The Riemann Zeta Function and Related Themes: Papers in Honour of Professor K. Ramachandra, Proceedings of international conf. held at National Institute of Advanced Studies (Bangalore, 13-15 December 2003), (Eds. by R. Balasubramanian and K. Srinivas), Ramanujan Mathematical Society Lecture Notes Series, **Number 2**, 1– 14, (2006).

4. S. D. Adhikari, R. Balasubramanian, F. Pappalardi and P. Rath, *Some zero-sum constants with weights*, Proc. Indian Acad. Sci. (Math. Sci.), to appear.

5. Sukumar Das Adhikari, Stephan Baier and Purusottam Rath, *An extremal problem in lattice point combinatorics*, Diophantine Equations, N. Saradha Ed., Tata Institute of Fundamental Research, to appear.

6. S. D. Adhikari, R. Balasubramanian and P. Rath, *Some combinatorial group invariants and their generalizations with weights*, CRM Proceedings and Lecture Notes, Granville, Nathanson, Solymosi Eds., to appear.

Conference/Workshops Attended:

1. *Workshop on Additive Combinatorics*, Centre de recherches mathématiques, Université de Montreal, Canada, April 2006.

2. *Arithmétique et Combinatoire*, Saint-Etienne, France, June 2006.

3. *Mathematical Foundations of Coding, Complexity, Computation and Cryptography*, Indian Institute of Sciences, Bangalore, India, July 2006.

4. *International Conference on Number Theory and Applications*, Ramakrishna Mission Vivekananda College, Chennai, India, December 2006.

5. *Sesquicentennial Symposium in Mathematics of Mumbai University*, Mumbai, India, January, 2007.

Visits to other Institutes:

1. Centre de Recherches Mathématiques, Université de Montreal, Canada, April 2006.

2. Laboratoire de Mathématiques de l'Université de Saint-Etienne, France, June 2006.

3. The Institute of Mathematical Sciences, Chennai, India, July 2006.

4. Indian Institute of Sciences, Bangalore, India, July 2006.

5. Department of Mathematics, Panjab University, Chandigarh, India, November 2006.

6. The Institute of Mathematical Sciences, Chennai, India, January 2007.

7. Belur Vidyamandir, India, March 2007.

8. Indian Statistical Institute, Calcutta, India, March 2007.

Invited Lectures/Seminars:

1. *Arithmétique et Combinatoire*, Saint-Etienne, France, June 2006.

2. *Mathematical Foundations of Coding, Complexity, Computation and Cryptography*, Indian Institute of Sciences, Bangalore, India, July 2006.

3. *International Conference on Number Theory and Applications*, Ramakrishna Mission Vivekananda College, Chennai, India, December 2006.

4. *Sesquicentennial Symposium in Mathematics of Mumbai University*, Mumbai, India, January, 2007.

Other Activities:

1. Was one of members of the organizing committee of the HRI Number Theory Year which started in August 2006.

2. Was one of the coordinators of the International Conference on Number Theory and Cryptography held at HRI during February 23-27, 2007.

3. Gave a course on Algebra to first year students and supervised two second year projects.

4. Supervised Ph. D. work of Dr. Purusottam Rath who obtained his Ph. D. degree in 2007.