

Curriculum Vitae

Palash Sarkar
Professor
Applied Statistics Unit
Indian Statistical Institute

1 Academic Degrees

- **Doctor of Philosophy** from the Indian Statistical Institute in 1999.
- **Master of Technology in Computer Science** from the Indian Statistical Institute in 1993.
- **Bachelor of Electronics and Telecommunication Engineering** from Jadavpur University, 1991.

2 Professional Background

- July 2011 onwards: **Professor (HAG)** at the **Indian Statistical Institute**, Kolkata.
- June 2005 – June 2011: **Professor** at the **Indian Statistical Institute**, Kolkata.
- October 2001 – May 2005: **Associate professor** at the **Indian Statistical Institute**, Kolkata.
- September 2000 – September 2001: **Postdoctoral fellow** at the Centre for Applied Cryptographic Research (CACR), **University of Waterloo**.
- May 1995 – August 2000: **Computer programmer** at the **Indian Statistical Institute**, Kolkata.
- May 1994 - May 1995 : **Computer programmer (Project-Linked)** at the Indian Statistical Institute, Kolkata.
- August 1993 – April 1994: **Associate Information Technology Engineer** at **CMC Ltd.** (a software company), Kolkata.

3 Students Advised

Subhabrata Samajder (PhD 2017).

Dissertation: Some Aspects of Statistical Analysis of Linear and Differential Cryptanalysis.

Shashank Singh (PhD 2016).

Dissertation: Studies on Index Calculus Techniques for the Discrete Log Problem.

Sanjay Bhattacharjee (PhD 2015).

Dissertation: Tree-Based Symmetric Key Broadcast Encryption.

Somindu Chaya Ramanna (PhD 2015).

Dissertation: Efficient and Adaptively Secure Constructions of Identity-Based Cryptographic Primitives.

Somitra Kumar Sanadhya (PhD 2009).

Dissertation: A Study of the SHA-2 Cryptographic Hash Family.

Sourav Mukhopadhyay (PhD 2007).

Dissertation: A Study on Time/Memory Trade-Off Cryptanalysis.

Sanjit Chatterjee (PhD 2006).

Dissertation: Construction of (Hierarchical) Identity Based Encryption Protocols Using Bilinear Pairing.

Pradeep Kumar Mishra (PhD 2004).

Dissertation: Studies on Efficient and Secure Implementation of Elliptic and Hyperelliptic Curve Cryptosystems.

Kishan Chand Gupta (PhD 2004).

Dissertation: Cryptographic and Combinatorial Properties of Boolean Functions and S-Boxes.

Significant Advisory Role.

Subhamoy Maitra (PhD 2001). Advisor: Bimal Kumar Roy.

Dissertation: Boolean Functions with Important Cryptographic Properties.

Ratna Dutta (PhD 2006). Advisor: Rana Barua.

Dissertation: Studies on Pairing-Based and Constant Round Dynamic Group Key Agreement Protocols

Mridul Nandi (PhD 2006). Advisor: Bimal Kumar Roy.

Dissertation: Designs of Iteration on Hash Functions and its Cryptanalysis

4 Academic Recognition

- Recipient of the **Shanti Swarup Bhatnagar award** for Mathematical Sciences for the year 2011.
- Co-recipient of the **B. M. Birla award** for Mathematics for the year 2005.
- Awarded the **Indian Statistical Institute Alumni Association Medal** for outstanding performance in MTech (CS), 1993.

5 Invited Talks at International Conferences/Workshops

- **Invited speaker** at the International Conference on Cryptology in India, Indocrypt, 2015.
- **Keynote speaker** at International Conference on Electrical Engineering, Computing Science and Automatic Control, CINVESTAV, Mexico City, Mexico, 2015.
- **Invited speaker** at the 18th workshop on Elliptic Curve Cryptography, Chennai, 2014.
- **Invited speaker** at the Workshop on Directions in Authenticated Ciphers, Stockholm, 2012.
- **Invited speaker** at the Asian Symmetric Key Symposium, Singapore, 2011.
- **Invited speaker** at the International Conference on Security Aspects in Information Technology, High-Performance Computing and Networking, Haldia, India, 2011.
- **Invited speaker** at the International Conference on Cryptology in India, Indocrypt, 2008.
- **Invited speaker** at the International Conference on Information Security and Cryptology held at Busan, Korea in 2006.
- **Tutorial speaker** at the International Conference on Cryptology in India, Indocrypt, 2006.

6 Teaching

6.1 Indian Statistical Institute

- **Introduction to Lattices**, Jan-Apr, 2017.
- **Research Methodolgy**, Jan-Apr, 2011.
- **Probability and Stochastic Processes**, Aug-Dec, 2008, 2009, 2010, 2014, 2015, 2016.
- **Topics in Computational Algebra**, Jan–May, 2004, 2005, 2006, 2015, 2016.
- **Information and Coding Theory**, Jan–May, 2006, 2008, 2009.
- **Randomized Algorithms**, research course, Mar–Aug, 2000.

- **Computational Aspects of Cryptography and Coding Theory**, research course, Jan–Apr, 2012.
- **Advanced Topics in Cryptology**, Jan–May, 2004.
- **Cryptology and Data Security**, Aug–Dec, 1999, 2002, 2003.
- **Discrete Mathematics-I (Elements of Algebraic Structures)**, Aug–Dec, 2013, 2012, 2011, 1999.
- **Discrete Mathematics-II (Combinatorics, Graph Theory and Logic)**, Aug–Dec, 1996, 1997, 1998, 2006, 2007.
- **Design and Analysis of Algorithms**, MTech (CS), Jan–May, 1998, 1999, 2002.
- **Selected Topics in Algorithms and Complexity**, MTech (CS), Jan–May, 1999, 2009, 2010.
- **Theory of Automata, Languages, Computability and Complexity**, MTech (CS), Jan–May, 1997, 2000, 2005.
- **Programming in Assembly and Systems Programming**, MTech (CS), Aug–Dec, 1995.
- **Information Storage and Retrieval (C Programming and Database)**, MStat, Aug–Dec, 1996, 1997, 1998.
- **Computational Techniques (C Programming and Numerical Analysis)**, BStat, Jan–May, 1996.
- **Database Management Systems**, Oct–Dec, 2001.
- **ORACLE 7.1/FORMS 4.5/REPORTS 2.5**, Diploma course, 1995, 1996, 1997.

6.2 Other Institutes

- Co-taught a course on cryptology to students of the **Indian Institute of Technology, New Delhi**, Jan–Apr, 2009.

7 Major Editorial Work

7.1 Journals

1. **Associate editor** of “Journal of Statistical Planning and Inference” for the period 2012–2104.
2. **Associate editor** of “Cryptography and Communications: Discrete Structures and Boolean Functions”, from March 4, 2015.

7.2 Conferences

1. **Program co-chair** (with Professor Tetsu Iwata) for **Asiacrypt 2014**, published by **Springer-Verlag** in the **Lecture Notes in Computer Science** series, numbers 8873 and 8874.
2. **Program co-chair** (with Dr. Kazue Sako) for **Asiacrypt 2013**, published by **Springer-Verlag** in the **Lecture Notes in Computer Science** series, numbers 8269 and 8270.
3. **Program co-chair** (with Professor Alfred Menezes) for the **proceedings of Indocrypt 2002**, published by **Springer-Verlag** in the **Lecture Notes in Computer Science** series, number 2551.
4. **Scientific committee member** for Elliptic Curve Cryptography, 2013, 2012.
5. **Program committee member** for
Crypto 2015, 2012, 2010, 2007; annual North American conference of the *International Association for Cryptologic Research*;
Asiacrypt 2015, 2011, 2008, 2007; annual Asian conference of the *International Association for Cryptologic Research*;
Eurocrypt 2012, 2005; annual European conference of the *International Association for Cryptologic Research*;
Fast Software Encryption (FSE) 2010, 2007, 2005, a workshop of the *International Association for Cryptologic Research*;
Africacrypt 2017, 2016, 2014, 2013, 2011, 2010; annual International Conference on Cryptology in Africa;
Latincrypt 2010; annual International Conference in Cryptology and Information security in Latin America;
Selected Areas in Cryptography, 2017, 2016, 2015, 2014;
SKLOIS Conference on Information Security and Cryptology (Inscrypt), 2006;
Applied Cryptography and Network Security (ACNS), 2010, 2009, 2007;
International Conference on Pairing-Based Cryptography (Pairing), 2012, 2007;
International Conference on Information Security and Cryptography (ICISC) 2012, 2011, 2010, 2009, 2008, 2007, 2006, 2005, 2004, 2003;
International Conference on Provable Security (ProvSec) 2012, 2011, 2010, 2009, 2007;
Indocrypt 2015, 2012, 2011, 2009, 2004, 2001, 2000;
Australasian Conference on Information Security and Privacy (ACISP) 2015, 2014, 2012, 2011, 2010, 2009, 2006, 2004;
Cryptographers Track – RSA Conference (CT-RSA) 2017, 2016, 2015, 2013, 2005;
ACM Symposium on Information, Computer and Communications Security (ASISACCS) 2009;
International Workshop on Security (IWSEC) 2011, 2010, 2009;
Workshop on Coding and Cryptography, 2017, 2015, 2011.
SPACE, 2016.

8 Publications

8.1 Books

1. Sanjit Chatterjee and Palash Sarkar. Identity-Based Encryption. Springer, 2011. Corrigendum available at <http://www.isical.ac.in/~palash/IBE-book/book-page.html>.
2. Satya R. Chakravarty, Manipushpak Mitra and Palash Sarkar. A Course on Cooperative Game Theory. Cambridge University Press, 2015.

8.2 Edited Volumes

1. Palash Sarkar and Tetsu Iwata (editors). **Proceedings of Asiacrypt 2014**, published by **Springer-Verlag** in the **Lecture Notes in Computer Science** series, numbers 8873 and 8874.
2. Kazue Sako and Palash Sarkar (editors). **Proceedings of Asiacrypt 2013**, published by **Springer-Verlag** in the **Lecture Notes in Computer Science** series, numbers 8269 and 8270.
3. Alfred Menezes and Palash Sarkar (editors). **proceedings of Indocrypt 2002**, published by **Springer-Verlag** in the **Lecture Notes in Computer Science** series, number 2551.

8.3 Journal Papers

Papers on Cryptology

1. Subhabrata Samajder and Palash Sarkar. Success Probability of Multiple/Multidimensional Linear Cryptanalysis Under General Key Randomisation Hypotheses. **Cryptography and Communications - Discrete Structures, Boolean Functions and Sequences**, to appear. **Journal of Mathematical Cryptology**, to appear.
2. Subhabrata Samajder and Palash Sarkar. Rigorous Upper Bounds on Data Complexities of Block Cipher Cryptanalysis. **Journal of Mathematical Cryptology**, to appear.
3. Debrup Chakraborty, Sebati Ghosh and Palash Sarkar. A Fast Single-Key Two-Level Universal Hash Function. **IACR Transactions on Symmetric Cryptology**, 2017(1): 106–128 (2017), url: <http://dx.doi.org/10.13154/tosc.v2017.i1.106-128>.
4. Debrup Chakraborty, Cuauhtemoc Mancillas-López and Palash Sarkar. Disk Encryption: Do We Need to Preserve Length? **Journal of Cryptographic Engineering**, DOI 10.1007/s13389-016-0147-0.
5. Somindu C. Ramanna, Palash Sarkar. Efficient Adaptively Secure IBBE from the SXDH Assumption. **IEEE Transactions on Information Theory**, volume 62, number 10, October 2016, pages 5709–5726.

6. Subhabrata Samajder and Palash Sarkar. Another Look at Normal Approximations in Cryptanalysis. **Journal of Mathematical Cryptology**, 10(2): 69–99 (2016), DOI: 10.1515/jmc-2016-0006.
7. Palash Sarkar and Shashank Singh. A simple method for obtaining relations among factor basis elements for special hyperelliptic curves. **Applicable Algebra in Engineering, Communication and Computing**, volume 28, number 2, pages 109–130, 2017.
8. Palash Sarkar and Shashank Singh. A New Method for Decomposition in the Jacobian of Small Genus Hyperelliptic Curves. **Designs, Codes and Cryptography**, 82(3): 601–616 (2017), DOI 10.1007/s10623-016-0184-9.
9. Sanjay Bhattacharjee and Palash Sarkar. Reducing Communication Overhead of the Subset Difference Scheme. **IEEE Transactions on Computers**, 65(8): 2575–2587 (2016), <http://doi.ieeecomputersociety.org/10.1109/TC.2015.2485231>.
10. Palash Sarkar and Shashank Singh. Fine Tuning the Function Field Sieve Algorithm for the Medium Prime Case. **IEEE Transactions on Information Theory**, volume 62, number 4, April 2016, pages 2233–2253.
11. Debrup Chakraborty and Palash Sarkar. On modes of operations of a block cipher for authentication and authenticated encryption. **Cryptography and Communications - Discrete Structures, Boolean Functions and Sequences**, 8(4): 455-511 (2016), DOI 10.1007/s12095-015-0153-6.
12. Sanjay Bhattacharjee and Palash Sarkar. Tree Based Symmetric Key Broadcast Encryption. **Journal of Discrete Algorithms**, volume 34, 2015, 78–107.
13. Debrup Chakraborty, Cuauhtemoc Mancillas-López and Palash Sarkar. STES: A Stream Cipher Based Low Cost Scheme for Securing Stored Data. **IEEE Transactions on Computers**, volume 64, number 9, September 2015, 2691–2707.
14. Debrup Chakraborty, Vicente Hernandez-Jimenez, Palash Sarkar. Another Look at XCB. **Cryptography and Communications - Discrete Structures, Boolean Functions and Sequences**, volume 7, 2015, 439–468.
15. Palash Sarkar. Modes of Operations for Encryption and Authentication Using Stream Ciphers Supporting an Initialisation Vector. **Cryptography and Communications - Discrete Structures, Boolean Functions and Sequences**, September 2014, Volume 6, Issue 3, pp 189–231.
16. Palash Sarkar. On Some Connections Between Statistics and Cryptology. **Journal of Statistical Planning and Inference**, Volume 148, May 2014, Pages 20–37.
17. Sanjay Bhattacharjee and Palash Sarkar. Concrete Analysis and Trade-Offs for the (Complete Tree) Layered Subset Difference Broadcast Encryption Scheme. **IEEE Transactions on Computers**, Volume 63, Number 7, July 2014, pp 1709–1722.

18. Sanjit Chatterjee and Palash Sarkar. Practical hybrid (hierarchical) identity-based encryption schemes based on the decisional bilinear Diffie-Hellman assumption. **International Journal of Applied Cryptography**, 3(1): 47–83, 2013.
19. Palash Sarkar. A New Multi-Linear Universal Hash Family. **Designs, Codes and Cryptography**, 69(3): 351–367 (2013).
20. Sanjay Bhattacharjee and Palash Sarkar. Complete Tree Subset Difference Broadcast Encryption Scheme and its Analysis. **Designs, Codes and Cryptography**, 66(1-3): 335–362 (2013).
21. Debrup Chakraborty, Cuauhtemoc Mancillas-López, Francisco Rodríguez-Henríquez and Palash Sarkar. Efficient Hardware Implementations of BRW Polynomials and Tweakable Enciphering Schemes. **IEEE Transactions on Computers**, 62(2): 279–294 (2013).
22. Palash Sarkar. Tweakable Enciphering Schemes Using Only the Encryption Function of a Block Cipher. **Information Processing Letters**, volume 111, pages 945–955, 2011.
23. Somindu C. Ramanna and Palash Sarkar. On Quantifying the Resistance of Concrete Hash Functions to Generic Multi-Collision Attacks. **IEEE Transactions on Information Theory**, Volume 57, Issue 7, pp 4798–4816.
24. Palash Sarkar. A Trade-Off Between Collision Probability and Key Size in Universal Hashing Using Polynomials. **Designs, Codes and Cryptography**, Volume 58, Issue 3, 2011, pp 271–278.
25. Palash Sarkar. A Simple and Generic Construction of Authenticated Encryption With Associated Data. **ACM Transactions on Information and Systems Security**, Volume 13 Issue 4, December 2010, Article 33, pp 1–16.
26. Palash Sarkar. Pseudo-Random Functions and Parallelizable Modes of Operations of a Block Cipher¹. **IEEE Transactions on Information Theory**, Volume 56, Number 8, August 2010, pp 4025–4037.
27. Palash Sarkar. Efficient Tweakable Enciphering Schemes from (Block-Wise) Universal Hash Functions. **IEEE Transactions on Information Theory**, Volume 55, Number 10, October 2009, pp 4749–4760.
28. Palash Sarkar. Domain Extender for Collision Resistant Hash Functions: Improving Upon Merkle-Damgard Iteration. **Discrete Applied Mathematics**, 157 (2009) 1086–1097.
29. Somitra Kumar Sanadhya and Palash Sarkar. A Combinatorial Analysis of Recent Attacks on Step Reduced SHA-2 Family. **Cryptography and Communications - Discrete Structures, Boolean Functions and Sequences**, Volume 1, Number 2/September, 2009, pp 135–282.

¹The AE(AD) constructions are incorrect. See <http://eprint.iacr.org/2014/627> for updated schemes and implementation details.

30. Kishan Chand Gupta and Palash Sarkar. Computing Partial Walsh Transform from the Algebraic Normal Form of a Boolean Function. **IEEE Transactions on Information Theory**, volume 55, number 3, year 2009, pages 1354–1359.
31. Sourav Mukhopadhyay and Palash Sarkar. Hardware Architecture and Cost/time/data Trade-off for Generic Inversion of One-Way Function. **Computación y Sistemas**, Special Issue on Applied Cryptography & Data Security, pp 331–355, Volume 12, No. 3, 2009.
32. Palash Sarkar. A General Mixing Strategy for the ECB-Mix-ECB Mode of Operation. **Information Processing Letters**, 109(2008), 121–123.
33. Debrup Chakraborty and Palash Sarkar. A General Construction of Tweakable Block Ciphers and Different Modes of Operations. **IEEE Transactions on Information Theory**, 54(5): 1991–2006 (2008).
34. Debrup Chakraborty and Palash Sarkar. HCH: A New Tweakable Enciphering Scheme Using the Hash-Counter-Hash Approach. **IEEE Transactions on Information Theory**, 54(4): 1683–1699 (2008).
35. Sanjit Chatterjee and Palash Sarkar. Constant Size Ciphertext HIBE in the Augmented Selective-ID Model and its Extensions. **Journal of Universal Computer Science**, 13(10), 1367–1395, 2007.
36. Palash Sarkar and Subhamoy Maitra. Balancedness and Correlation Immunity of Symmetric Boolean Functions, **Discrete Mathematics**, 307 (2007) 2351–2358.
37. Palash Sarkar. Construction of universal one-way hash functions: Tree hashing revisited. **Discrete Applied Mathematics**, 155(16): 2174-2180 (2007).
38. Palash Sarkar. Masking Based Domain Extenders for UOWHFs: Bounds and Constructions, **IEEE Transactions on Information Theory**, 51(12): 4299–4311.
39. Kishan Chand Gupta and Palash Sarkar, Towards a General Correlation Theorem, **IEEE Transactions on Information Theory**, 51(9): pp. 3297-3302 (2005).
40. Kishan Chand Gupta and Palash Sarkar. Improved Construction of Nonlinear Resilient S-Boxes, **IEEE Transactions on Information Theory**, Volume 51, Number 1, January 2005, pages 339-348.
41. Kishan Chand Gupta and Palash Sarkar. Construction of Perfect Nonlinear and Maximally Nonlinear Multi-Output Boolean Functions Satisfying Higher Order Strict Avalanche Criteria, **IEEE Transactions on Information Theory**, Volume 50, Number 11, November 2004, pages 2886-2893.
42. Palash Sarkar. Domain Extenders for UOWHF: A Finite Binary Tree Algorithm. **Journal of Universal Computer Science**, Volume 11, Number 6, pages 1040–1053.
43. Kishan Chand Gupta and Palash Sarkar. Construction of High Degree Resilient S-boxes With Improved Nonlinearity, **Information Processing Letters**, Volume 95, 2005, pages 413–417.

44. Wonil Lee, Mridul Nandi, Palash Sarkar, Donghoon Chang, Sangjin Lee, Kouichi Sakurai, PGV-Style Block-Cipher-Based Hash Families and Black-Box Analysis. **IEICE Transactions**, 88-A(1): 39-48 (2005).
45. Enes Pasalic, Subhamoy Maitra, Thomas Johansson, and Palash Sarkar, New Constructions of Resilient and Coorelation Immune Boolean Functions Achieving the Upper Bound on Nonlinearity, **Journal of Indian Statistical Association**, special issue on cryptology, Volume 42, Number 9, December 2004, pages 287-307.
46. Rana Barua and Palash Sarkar, On the Kernel of First Order Correlation Immune Boolean Functions, **Journal of Indian Statistical Association**, special issue on cryptology, Volume 42, Number 2, December 2004, pages 131-143.
47. Palash Sarkar and Subhamoy Maitra. Construction of Nonlinear Resilient Functions Using “Small” Affine Functions, **IEEE Transactions on Information Theory**, 50(9):2185-2193 (2004).
48. Palash Sarkar and Subhamoy Maitra. Efficient Implementation of Cryptographically Useful Large Boolean Functions, **IEEE Transactions on Computers**, volume 52, number 4, pp 410-417, April 2003.
49. Subhamoy Maitra and Palash Sarkar. Maximum Nonlinearity of Symmetric Boolean Functions on Odd Number of Variables, **IEEE Transactions on Information Theory**, volume 48, number 9, September 2002, pp 2626-2630.
50. Claude Carlet and Palash Sarkar. Spectral Domain Analysis of Correlation Immune and Resilient Boolean Functions, **Finite Fields and their Applications**, Volume 8, Number 1, January 2002, Pages 120-130.
51. Subhamoy Maitra and Palash Sarkar. Characterization of Symmetric Bent Functions – An Elementary Proof, **Journal of Combinatorial Mathematics and Combinatorial Computing**, 43 (2002), 227-230.
52. Subhamoy Maitra and Palash Sarkar. Cryptographically Significant Boolean Functions with Five Valued Walsh Spectra, **Theoretical Computer Science** 276(1-2):133-146 (2002).
53. Palash Sarkar and Subhamoy Maitra. Cross-Correlation Analysis of Cryptographically Useful Boolean Functions and S-Boxes, **Theory of Computing Systems**, 35(1): 39-57 (2002).
54. Subhamoy Maitra and Palash Sarkar. Cryptographic Modifications of Patterson-Weidemann Functions, **IEEE Transactions on Information Theory**, volume 48, number 1, pp. 278-284, 2002.
55. Palash Sarkar. A note on the spectral characterization of correlation immune Boolean functions. **Information Processing Letters**, Volume 74, Numbers 5–6, (2000) pages 191-195.
56. Subhamoy Maitra, Palash Sarkar. Hamming Weights of Correlation Immune Boolean Functions. **Information Processing Letters**, Volume 71, Numbers 3–4, (1999) pages 149–153.

57. Subhamoy Maitra, Bimal K. Roy and Palash Sarkar, Ciphertext only attack on LFSR based encryption scheme, **Bulletin of the Calcutta Statistical Association**, Volume 49, Number 195–196, pages 239-254, 1999.

Papers on Voting Games

58. Rana Barua, Satya R. Chakravarty and Palash Sarkar. Measuring P-Power of Voting. **Journal of Economic Theory and Social Development**, Volume 1, Number 1, Pages 81–91, 2012.
59. Rana Barua, Satya R. Chakravarty and Palash Sarkar. Minimal-Axiom Characterizations of the Coleman and Banzhaf Indices of Voting Power. **Mathematical Social Sciences**, 58 (2009) 367–375.
60. Rana Barua, Satya R. Chakravarty, Sonali Roy and Palash Sarkar. A Characterization and Some Properties of the Banzhaf-Coleman Sensitivity Index, **Games and Economic Behaviour**, Volume 49, Issue 1, October 2004, Pages 31-48.

Papers on Combinatorial Designs

61. Palash Sarkar and Paul J. Schellenberg. Construction of Symmetric Balanced Squares with Blocksize More than One, **Designs, Codes, and Cryptography**, November 2003, Volume 30, Issue 3, pp 235-280.
62. Palash Sarkar and Bimal K. Roy. Construction of Nearly Balanced Uniform Repeated Measurement Designs, **Bulletin of the Calcutta Statistical Association**, Volume 45, Numbers 179–180, pages 235-243, 1995.

Papers on Cellular Automata

63. Palash Sarkar. Computing Shifts in 90/150 Cellular Automata Sequences, **Finite Fields and their Applications**, Volume 9, Issue 2, April 2003, Pages 175-186.
64. Palash Sarkar. A brief history of cellular automata. **ACM Computing Surveys**, Volume 32, Issue 1 (2000), pages 80–107.
65. Palash Sarkar, Rana Barua. Multidimensional Sigma-Automata, Pi-Polynomials and Generalised S-Matrices, **Theoretical Computer Science**, 197(1-2), pages 111–138 (1998).
66. Palash Sarkar and Rana Barua. The set of reversible 90/150 cellular automata is regular, **Discrete Applied Mathematics**, Volume 84, Numbers 1–3, (1998) pages 199-213.
67. Palash Sarkar. σ^+ -Automata on Square Grids, **Complex Systems**, Volume 10, pages 121–141, 1998.

Papers on miscellaneous topics

68. Sanjay Burman and Palash Sarkar. An Efficient Algorithm for Software Generation of Linear Binary Recurrences, **Applicable Algebra in Engineering, Communication and Computing**, Volume 15, Issue 3/4, December 2004.

69. Palash Sarkar, Bimal K. Roy, Pabitra Pal Choudhury and Rana Barua. Polynomial division using left shift register, **Computers and Mathematics with Applications**, Volume 35, Number 6, 1998, pages 27–31.

8.4 Conference Papers

All the papers below have appeared in refereed conference proceedings. The acronym LNCS stands for Lecture Notes in Computer Science, which is a book series published by Springer-Verlag. (Expanded versions of the papers marked with * have later been published as journal papers and are included in the section on journal papers.)

70. Sabyasachi Karati and Palash Sarkar. Kummer for Genus One over Prime Order Fields, **Proceedings of Asiacrypt 2017**, to appear.
71. Palash Sarkar and Shashank Singh, A General Polynomial Selection Method and New Asymptotic Complexities for the Tower Number Field Sieve Algorithm, **Proceedings of Asiacrypt, 2016, Part-I**, Lecture Notes in Computer Science, Springer, volume 10031, pages 36–62, 2016. http://dx.doi.org/10.1007/978-3-662-53887-6_2.
72. Subhabrata Samajder and Palash Sarkar. A New Test Statistic for Key Recovery Attacks Using Multiple Linear Approximations. **Proceedings of Mycrypt 2016**, Lecture Notes in Computer Science, volume 10311, pages 277–293, 2016.
73. Sanjit Chatterjee, Neal Kobitz, Alfred Menezes, Palash Sarkar. Another Look at Tightness II: Practical Issues in Cryptography. **Proceedings of Mycrypt 2016**, Lecture Notes in Computer Science, volume 10311, pages 21–55, 2016. *Recipient of the best paper award.*
74. Alfred Menezes, Palash Sarkar, Shashank Singh. Challenges with Assessing the Impact of NFS Advances on the Security of Pairing-based Cryptography. **Proceedings of Mycrypt 2016**, Lecture Notes in Computer Science, volume 10311, pages 83–108, 2016.
75. Palash Sarkar and Shashank Singh. New Complexity Trade-Offs for the (Multiple) Number Field Sieve Algorithm in Non-Prime Fields. **Proceedings of Eurocrypt, 2016, Part-I**, Lecture Notes in Computer Science, Springer, volume 9665, pages 429–458, 2016. http://dx.doi.org/10.1007/978-3-662-49890-3_17.
76. Somindu C. Ramanna and Palash Sarkar. Efficient (Anonymous) Compact HIBE From Standard Assumptions. **Proceedings of the International Conference on Provable Security**, Lecture Notes in Computer Science, volume 8782, pp 243–258, 2014.
77. Subhabrata Samajder and Palash Sarkar. Some Randomness Experiments on TRIVIUM. **Proceedings of the 4th International Conference on Security, Privacy, and Applied Cryptography Engineering**, Lecture Notes in Computer Science, volume 8804, pp 219–236, 2014.
78. Somindu C. Ramanna and Palash Sarkar. Anonymous Constant-Size Ciphertext HIBE From Asymmetric Pairings. **Proceedings of the 14th IMA International Conference on**

Cryptography and Coding, Lecture Notes in Computer Science, volume 8308, pages 344–363, 2013.

79. Subhabrata Samajder and Palash Sarkar. Fast Multiplication of the Algebraic Normal Forms of Two Boolean Functions. **Proceedings of the 8th Workshop on Coding and Cryptography**, April 15-19, 2013.
80. Somindu C. Ramanna, Sanjit Chatterjee and Palash Sarkar. Variants of Waters' Dual System Primitives Using Asymmetric Pairings. **Proceedings of Public Key Cryptography, 2012**, Lecture Notes in Computer Science, volume 7293, pp 298–315.
81. Sanjit Chatterjee, Alfred Menezes and Palash Sarkar. Another Look at Tightness. **Proceedings of Selected Areas in Cryptography, 2011**, Lecture Notes in Computer Science, volume 7118, pages 293–319.
82. Sanjay Bhattacharjee and Palash Sarkar. An Analysis of the Naor-Naor-Lotspeich Subset Difference Algorithm. **Proceedings of the 7th Workshop on Coding and Cryptography**, April 11–15, 2011.
83. Somitra Kumar Sanadhya and Palash Sarkar. A New Hash Family Obtained by Modifying the SHA-2 Family. **Proceedings of ACM Symposium on Information, Computer and Communications Security (ASIACCS '09)**, pages 353–363.
84. (*) Somitra Kumar Sanadhya and Palash Sarkar. New Collision attacks Against Up To 24-step SHA-2 (extended abstract). **Proceedings of Indocrypt 2008**, Lecture Notes in Computer Science, volume 5365, pages 91–103.
85. (*) Somitra Kumar Sanadhya and Palash Sarkar. Deterministic Constructions of 21-Step Collisions for the SHA-2 Hash Family. **11th Information Security Conference (ISC 2008)**, Lecture Notes in Computer Science, Springer, volume 5222, pages 244–259.
86. M. Prem Laxman Das and Palash Sarkar. Pairing Computation on Twisted Edwards Form Elliptic Curves. **2nd International Conference on Pairing-Based Cryptography (Pairing 2008)**, Lecture Notes in Computer Science, Springer, volume 5209, pages 192–210.
87. (*) Somitra Kumar Sanadhya and Palash Sarkar. Non-Linear Reduced Round Attacks Against SHA-2 Hash family. **Australasian Conference on Information Security and Privacy (ACISP 2008)**, Lecture Notes in Computer Science, Springer, volume 5107, pp 254–266.
88. Somitra Kumar Sanadhya and Palash Sarkar. Attacking Reduced Round SHA-256. **Applied Cryptography and Network Security (ACNS 2008)**, Lecture Notes in Computer Science, Springer, volume 5037, pp 130–143.
89. Palash Sarkar. Improving Upon the TET Mode of Operation, **International Conference on Information Security and Cryptology, 2007**, Lecture Notes in Computer Science, Springer, volume 4817, pp 180–192.

90. Somitra Kumar Sanadhya and Palash Sarkar. New Local Collisions for the SHA-2 Hash Family, **International Conference on Information Security and Cryptology, 2007**, Lecture Notes in Computer Science, Springer, volume 4817, pp 192–205.
91. Palash Sarkar and Sanjit Chatterjee. Construction of a Hybrid Hierarchical Identity Based Encryption Protocol Secure Against Adaptive Attacks (Without Random Oracle), **International Conference on Provable Security, 2007**, pp 51–67, Lecture Notes in Computer Science, volume 4784,
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8.5 Book Chapters and Expository Articles

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8.6 Technical Reports

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This report introduced a **new variant of pushdown automata** (PDA) and identified an **infinite hierarchy** of languages from the **context free to the recursively enumerable**. The paper proposed a set of **open problems** on the new topic. These were subsequently **solved** by M. Holzer, M. Kutrib and published at ICALP 2003 and DLT 2003.