

Zhedong Wang

CURRENT POSITION

Florida Atlantic University

Jul 2019 - Current

Postdoctoral Fellow in Cryptography

Supported by NSF CRII Award (CNS-1657040) and NSF Career Award (CNS-1942400)

College of Engineering and Computer Science

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Supervisor: Prof. Feng-Hao Liu

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RESEARCH INTERESTS

- Main interests
 - Post-quantum Cryptography
 - Lattice-based Cryptography: Fully Homomorphic Encryption, Identity-based Encryption, Attribute-based Encryption, Functional Encryption
 - Leakage and Tampering Resilient Cryptography
- Computational complexity and algebraic number theory

EDUCATION

University of Chinese Academy of Sciences

Sep 2013 - Jun 2019

Ph.D. in Cryptography & Information Security

State Key Laboratory of Information Security (SKLOIS)

Advisors: Prof. Mingsheng Wang and Prof. Feng-Hao Liu (co-advised at FAU)

Thesis: Research on Lattice-based Public Key Cryptosystems Design and Tight Security

Sichuan University

Sep 2009 - Jun 2013

B.S. in Mathematics

EMPLOYMENT

- Postdoctoral fellow, Florida Atlantic University, FL *Jul 2019 - Current*
- Research assistant, Florida Atlantic University, FL *Sep 2017 - Jun 2019*

TEACHING EXPERIENCES

- Guest Lecturer for COT 6930: Cryptography under Physical Attacks *Fall 2019*
 - Presented Entropy and Randomness Extraction
 - Instructor: Feng-Hao Liu
 - Florida Atlantic University, FL
- Guest Lecturer for COT 6200: Computational Complexity *Fall 2017*
 - Hosted student presentations

- Instructor: Feng-Hao Liu
- Florida Atlantic University, FL
- Teaching Assistant for 201M4001H: The Mathematical Foundations of Cryptography Fall 2016
 - Graded assignments and exams
 - Instructor: Mingsheng Wang and Yongqiang Li
 - University of Chinese Academy of Sciences, Beijing.

VISITING EXPERIENCES

- Simons Institute for the Theory of Computing, UC Berkeley, CA Feb 2020
 - Event: Workshop
 - Topic: Lattices: Geometry, Algorithms and Hardness

PUBLICATIONS

Publications in Print

• Conference Publications

- 1 Qiqi Lai, Feng-Hao Liu, Zhedong Wang. **Rate-1 Key-Dependent Message Security via Reusable Homomorphic Extractor against Correlated-Source Attacks**. To appear in PKC 2021.
- 2 Qiqi Lai, Feng-Hao Liu, Zhedong Wang. **New Lattice Pre-sampling Technique and its Applications to Functional Encryption - Stronger Security and Smaller Ciphertexts**. To appear in Eurocrypt 2021.
- 3 Feng-Hao Liu, Zhedong Wang. **Rounding in the Rings**. In Annual International Cryptology Conference (CRYPTO), 2020.
- 4 Qiqi Lai, Feng-Hao Liu, Zhedong Wang. **Almost Tight Security in Lattices with Polynomial Moduli - PRF, IBE, All-but-many LTF, and More**. In Proceedings of the 23th International Conference on Practice and Theory of Public Key Cryptography (PKC), 2020.
- 5 Zhedong Wang, Xiong Fan, Feng-Hao Liu. **FE for Inner Products and Its Application to Decentralized ABE**. In Proceedings of the 22th International Conference on Practice and Theory of Public Key Cryptography (PKC), 2019.
- 6 Zhedong Wang, Xiong Fan and Mingsheng Wang. **Compact Inner Product Encryption from LWE**. In Proceedings of the 19th International Conference on Information and Communications Security (ICICS), 2017.

• Journal Publications

- 1 Yuan Chen, Qingkuan Dong, Yannan Li, Qiqi Lai and Zhedong Wang. **Natural sd-RCCA Secure Public-key Encryptions from Hybrid Paradigms**. Journal of Universal Computer Science, vol. 25, no. 3 (2019), 158-181.

Manuscripts

- 1 Qiqi Lai, Feng-Hao Liu, Zhedong Wang. **Leakage-resilient ABE with Optimal Leakage Rates from Lattices**. 2020.

- 2 Mingsheng Wang, Xi Lin, Heyang Cao, Feng-Hao Liu, Zhedong Wang. **Practical (ℓ -more) Extractable Hash Functions from Ideal Lattices**. 2020.

SCIENTIFIC PRESENTATIONS

- Rounding in the Rings
 - Shanxi Normal University (Virtual) Feb 2021
- Algebraically Structured Learning with Rounding (LWR)
 - Florida Atlantic University, FL, US Aug 2020
- Almost Tight Security in Lattices
 - Florida Atlantic University, FL, US Feb 2020
- FE for Inner Products and Its Application to Decentralized ABE
 - PKC 2019, Beijing China Apr 2019

RELEVANT GRANT

- NSF Career Award (CNS-1942400): Towards Efficient Cryptography for Next Generation Applications
 - PI: Feng-Hao Liu
 - Role: postdoctoral
 - Florida Atlantic University, FL, US \$500,000.00 Jul 2020 - Jun 2025
 - Related researches: “**1,2,3**” of my conference publications
- NSF CRII Award (CNS-1657040): Practical Cryptographic Coding Schemes Against Memory Attacks
 - PI: Feng-Hao Liu
 - Role: research assistant and postdoctoral
 - Florida Atlantic University, FL, US, \$175,000.00 Aug 2017 - Jul 2021
 - Related researches: “**4,5**” of my conference publications
- National Key R&D Program of China-2017YFB0802202
 - PI: Mingsheng Wang
 - Role: Ph.d candidate
 - Institute of Information Engineering. CAS
 - Related research: “**4**” of my conference publications

AWARDS

- Travel Grant, Simons Institute for the Theory of Computing, CA 2020
- National Scholarship for Encouragement, China, Dec 2012

PROFESSIONAL SERVICES

- External Reviewer: PKC 2021, CRYPTO 2020, Asiacypt 2020, PKC 2019, Asiacypt 2019.