Crypto and Security Project of Strategic Japanese-Indian Cooperative Program on Multidisciplinary Research Field, which combines Information and Communications Technology with Other Fields

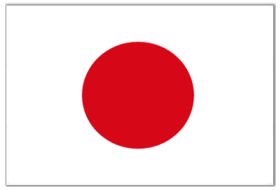
Supported by Japan Science and Technology Agency & Department of Science and Technology of the Government of India

HP@ http://itslab.csce.kyushu-u.ac.jp/JIP/index.html

Kanta MATSUURA, Univ. of Tokyo
Takashi NISHIDE, Kouichi SAKURAI, Kyushu Univ.
Hajime WATANABE, AIST



RESEARCH TEAMS



Team #	Name	Affiliation
1	Prof. Kouichi SAKURAI	Kyushu University
2	Prof. Kanta MATSUURA	Tokyo University
3	Dr. Hajime WATANABE	AIST*

*: National Institute of Advanced Industrial Science and Technology

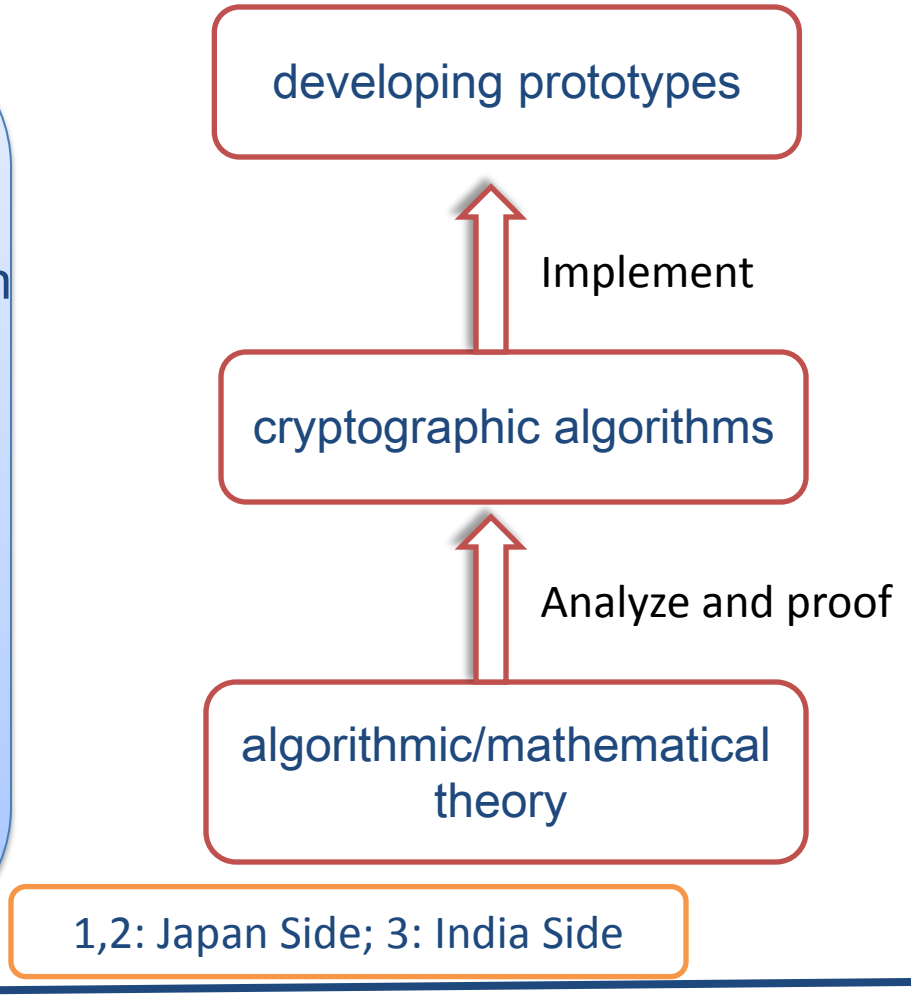
Team #	Name	Affiliation
1	Prof. Bimal ROY	Indian Statistical Institute
2	Prof. Anish MATHURIA	DA-IICT*
3	Dr. Sugata GANGOPADHYAY	India Institute of Technology

*: Dhirubhai Ambani Institute of Infomation and Communication Technology

1 Analysis of Cryptographic Algorithms and Evaluation on Enhancing Network Security Based on Mathematical Science

The main objects:

1. To design cryptographic algorithms, and implementation with prototype;
2. To gather information on network incident data and model them; and
3. To analyze and prove the security of cryptographic algorithms with algorithmic/mathematical theory.



National Institute of Advanced Industrial Science and Technology AIST

ISIT

KDDI

STATISTICAL INDIAN INSTITUTE UNITY IN DIVERSITY

UNIVERSITY OF CALCUTTA ADVANCEMENT OF LEARNING

2

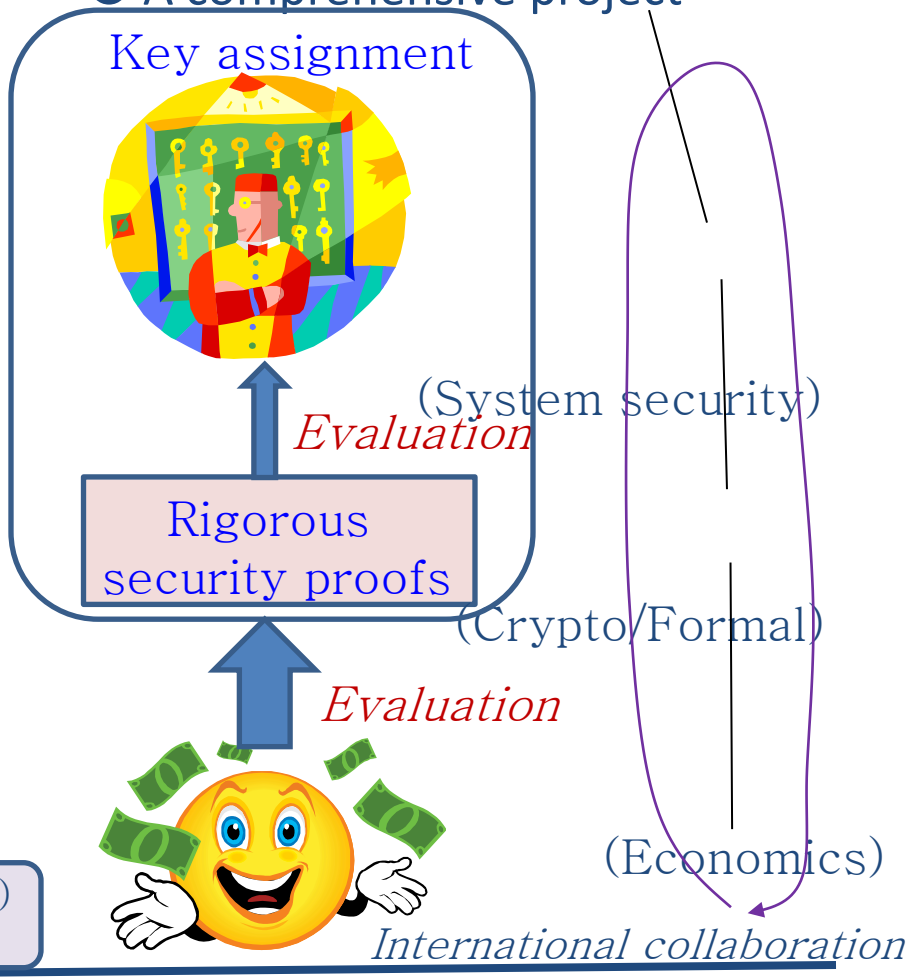
Security proofs and multidisciplinary evaluation for dynamic hierarchical key assignment schemes

- The main objectives:
  - (1) to develop and apply a proof model for reasoning about the security of dynamic schemes; and
  - (2) to evaluate the proposed model in a multidisciplinary way.
- The sub topics include

(3) provable security in general.

  - (1) and (3) are different in terms of technology but can be evaluated in a similar manner in terms of economic impacts and implications.

- A comprehensive project



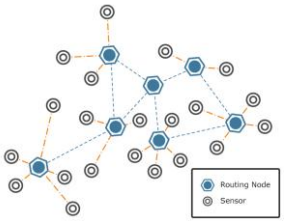
(1) Anish Mathuria (Dhirubhai Ambani Institute of ICT)
(2),(3) Kanta Matsuura (The University of Tokyo)

3 Design & Security Evaluation of RFID & Cryptographic Techniques for Sensor Networks and Its Components

- Develop highly secure functionalities in RFID and sensor network where only limited computation abilities are available
- Develop and implement highly efficient functionalities with simple hardware and low electronic power consumption

3H: High Efficiency; High Performance; High Safety

Limited computation ability



RFID/ Sensor Network

National Institute of Advanced Industrial Science and Technology AIST

ISIT

KDDI

STATISTICAL INDIAN INSTITUTE UNITY IN DIVERSITY

UNIVERSITY OF CALCUTTA ADVANCEMENT OF LEARNING

Joint Workshop Announcement

- 1st workshop held on12th December, 2009, India

- Total 11 reports from: *Prof. Kazukuni Kobara, Dr.Avishek Adhikari,Dr. Rishiraj Bhattacharyya, Dr. Naveen Chaudhary, Dr. Yang Cui, Dr. Takashi Nishide, Dr. Junichi Takeuch, Dr. Jacob Schuldt, Dr. Subhamoy Maitr, Dr. Sugata Gangopadhyay, Dr. Miodrag Mihaljevic.*
- Main topics: *Multi-Secret Sharing Scheme, Hash Function, Code-Based Public-Key Cryptosystems, Undeniable Signature, etc.*
- 2nd workshop held in 2010 ,Japan

Call for Participation

1st Workshop Program in India

- 9.30 -10.00 *Inauguration*
- 10.00- 10.30 *Tea*
- 10.30-11.00 *Constructions of some Multi-Secret Sharing Schemes by* Avishek Adhikari
- 11.30-12.00 *Hash Function Combiners by* Rishiraj Bhattacharyya
- 12.00-12.30 *Topic To be Decided by* Naveen Chaudhary
- 12.00 -12.30 *Tea*
- 12.30-13.00 *Some Hot Topics on Code-Based Public-Key Cryptosystems by* Prof. Kazukuni Kobara
- 13.00-13.30 *Efficient Constructions of Deterministic Encryption from Hybrid Encryption and Code-Based PKE by* Yang Cui
- 13.30-14.30 *LUNCH*
- 14.30- 15.00 *Multiparty Computation for Interval, Equality, and Comparison Without Bit-Decomposition Protocol by* Takashi Nishide
- 15.00- 15.30 *On Botnet Detection using Sparse Structure Learning by* Junichi Takeuchi
- 15.30- 16.00 *Undeniable Signatures with Delegatable Verification by* Jacob Schuldt
- 16.00-16.30 *Tea*
- 16.30-17.00 *Topic To Be Decided by* Subhamoy Maitra
- 17.00-17.30 *Third-order nonlinearities of a subclass of Kasami functions by* Sugata Gangopadhyay
- 17.30-18.00 *Secret Key Recovery of Keystream Generator LILI-128 Based on a Novel Weakness of the Employed Boolean Function by* Miodrag Mihaljevic

Thank you for your attention