Lecture Notes in Computer Science 4450

Tatsuaki Okamoto   Xiaoyun Wang (Eds.)

Public Key Cryptography – PKC 2007

10th International Conference
on Practice and Theory in Public-Key Cryptography
Beijing, China, April 16-20, 2007
Proceedings

Springer

Volume Editors

Tatsuaki Okamoto
NTT Laboratories, Nippon Telegraph and Telephone Corporation
Japan
E-mail: okamoto.tatsuaki@lab.ntt.co.jp

Xiaoyun Wang
Shandong University and Tsinghua University
China
E-mail: xywang@sdu.edu.cn

Preface

The 10th International Conference on Theory and Practice of Public-Key Cryptography (PKC 2007) was held at Tsinghua University in Beijing, China, April 16–20, 2007. PKC is the premier international conference dedicated to cryptology focusing on all aspects of public-key cryptography. The event is sponsored by the International Association of Cryptologic Research (IACR), and this year it was also sponsored by the National Natural Science Foundation of China (NSFC) and Tsinghua University.

The conference received 118 submissions, and the Program Committee selected 29 of these for presentation. The Program Committee worked very hard to evaluate the papers with respect to quality, originality, and relevance to public-key cryptography. Each paper was anonymously reviewed by at least three Program Committee members.

Extended abstracts of the revised versions of the accepted papers are in these proceedings. The program also included three invited lectures by Rafail Ostrovsky with UCLA, USA, Shige Peng with Shandong University, China and Adi Shamir with the Weizmann Institute of Science, Israel. Two papers regarding the invited lectures are included in these proceedings. The PKC 2007 Program Committee had the pleasure of awarding this year's PKC best paper award to Xavier Boyen and Brent Waters for their paper, entitled "Full-Domain Subgroup Hiding and Constant-Size Group Signatures."

We are extremely grateful to the Program Committee members for their enormous investment of time and effort in the difficult and delicate process of review and selection. We gratefully acknowledge the help of a large number of external reviewers who reviewed submissions in their area of expertise. We also thank the PKC Steering Committee for their support.

Electronic submissions were made possible by the Web Review system, iChair, developed by Thomas Baignéres and Matthieu Finiasz at EPFL, LASEC. We would like to thank Thomas Baignéres and Matthieu Finiasz for their great support.

We deeply thank Andrew C. Yao, the General Chair, for his effort in organizing and making this conference possible. The great scientist was the source of the success of PKC 2007.

We are grateful to all the Organizing Committee members for their volunteer work. In addition, we would like to thank Wei Yu for his enormous support in installing and operating the iChair system in the review process and editing of these proceedings.

We wish to thank all the authors, for submitting papers, and the authors of accepted papers for their cooperation.

February 2007   Tatsuaki Okamoto
                                                                                  Xiaoyun Wang

PKC 2007

The 10th International Conference on Theory and Practice of Public-Key Cryptography

Tsinghua University, Beijing, China, April 16–20, 2007

General Chair
Andrew C. Yao, Tsinghua University, China

Program Co-chairs
Tatsuaki Okamoto, NTT, Japan
Xiaoyun Wang, Tsinghua University, China

Organizing Committee

Andrew C. Yao .... Tsinghua University, China
Xiaoyun Wang .... Tsinghua University, China
Yuexuan Wang .... Tsinghua University, China
Xiaoming Sun .... Tsinghua University, China
Hongbo Yu .... Tsinghua University, China
Qi Feng .... Tsinghua University, China
Meiqin Wang .... Shandong University,China

Program Committee

Feng Bao .... I2R, Singapore
Jung Hee Cheon .... Seoul National University, Korea
Alfredo De Santis .... University of Salerno, Italy
Yvo Desmedt .... UCL, UK
Giovanni Di Crescenzo .... Telcordia Tech., USA
Steven Galbraith .... Royal Holloway University of London, UK
Juan Garay .... Bell labs, USA
Jonathan Katz .... University of Maryland, USA
Kwangjo Kim .... ICU, Korea
Hugo Krawczyk .... IBM, USA
Arjen Lenstra .... Lucent, USA
Anna Lysyanskaya .... Brown University, USA
Alfred Menezes .... University of Waterloo, Canada
Kazuo Ohta .... University of Electro-Communications, Japan

Rafail Ostrovsky .... UCLA, USA
Dingyi Pei .... Guangzhou University, China
David Pointcheval .... ENS, France
C. Pandu Rangan .... IIT Madras, India
Hovav Shacham .... Weizmann Institute, Israel
Igor Shparlinski .... Macquarie University, Australia
Serge Vaudenay .... EPFL, Switzerland
Frances Yao .... City University of Hong Kong, Hong Kong, China
Moti Yung .... Columbia University, USA
Yuliang Zheng .... University of North Carolina at Charlotte, USA

Steering Committee

Ronald Cramer .... CWI and Leiden University, The Netherlands
Yvo Desmedt .... University College London, UK
Hideki Imai (Chair) .... AIST and Chuo University, Japan
Kwangjo Kim .... Information and Communications University, Korea
David Naccache .... ENS, France
Tatsuaki Okamoto .... NTT, Japan
Jacques Stern .... ENS, France
Moti Yung .... RSA Laboratories and Columbia University, USA
Yuliang Zheng (Secretary) .... University of North Carolina at Charlotte, USA

External Reviewers

Michel Abdalla	Yuichiro Esaki	Yutaka Kawai
Patrick Amon	Serge Fehr	Aggelos Kiayias
Paolo D Arco	Anna Lisa Ferrara	Eike Kilt
Joonsang Baek	Matthieu Finiasz	Woo-Hwan Kim
Thomas Baigneres	Pierre-Alain Fouque	Thorsten Kleinjung
Caroline Belrose	Rosario Gennaro	Yuichi Kokubun
Olivier Billet	Nick Howgrave Graham	Vlad Kolesnikov
Colin Boyd	Jens Groth	Yuichi Komano
Dan Brown	Shai Halevi	Takahiro Kondo
Qingjun Cai	Safuat Hamdy	Chiu-Yuen Koo
Sebastien Canard	Yoshikazu Hanatani	Noboru Kunihiro
Melissa Chase	Darrel Hankerson	Kaoru Kurosawa
Carlos Cid	Jason Hinek	Taekyoung Kwon
Scott Contini	Qiong Huang	Rob Lambert
Cecile Delerablee	James Hughes	Kristin Lauter
Alex Dent	Sebastien Kunz Jacques	Munkyu Lee
Konidala M. Divyan	Ellen Jochemsz	Jin Li
Junwu Dong	Pascal Junod	Yong Li
Dang Nguyen Duc	Marcelo Kaihara	Vo Duc Liem
Ratna Dutta	Alexandre Karlov	Seongan Lim

Perret Ludovic
Daegun Ma
Benoit Chevallier Mames
Barbara Masucci
Alex May
Alexander May
Maria Meyerovich
Anton Mityagin
Satoshi Miyagawa
Payman Mohassel
David Molnar
Jean Monnerat
Siguna Mueller
Phong Nguyen
Phong Q. Nguyen
Takashi Nishide
Haruki Ota
Duong Hieu PHAN

Sylvain Pasini
Kenny Paterson
Manas Patra
Ludovic Perret
Benny Pinkas
Tal Rabin
Leonid Rayzin
Pankaj Rohatgi
Bagus Santoso
Benjamin Smith
Martijn Stam
Ron Steinfeld
Rene Struik
Willy Susilo
Chunming Tang
Emmanuel Thome
Xiaojian Tian
Jacques Traore

Berkant Ustaoglu
Jose Villegas
Ivan Visconti
Martin Vuagnoux
Shabsi Walfish
Brent Waters
Christopher Wolf
Duncan S. Wong
David Woodruff
Yongdong Wu
Guomin Yang
Jeong Hyun Yi
Kazuki Yoneyama
Hyojin Yoon
Xiaolai Zhang

Table of Contents

Signatures II

Multivariate Cryptosystems

Encryption

Protocols II

Invited Talk II

Number Theoretic Techniques

Public-Key Infrastructure