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Carlos Cid · Michael J. Jacobson, Jr. (Eds.)

# Selected Areas in Cryptography – SAC 2018

25th International Conference  
Calgary, AB, Canada, August 15–17, 2018  
Revised Selected Papers

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# Preface

The Conference on Selected Areas in Cryptography (SAC) is the leading Canadian venue for the presentation and publication of cryptographic research, and has been held annually since 1994. SAC celebrated its 25th anniversary in 2018, taking place for the second time at the University of Calgary in Calgary, Alberta. In keeping with its tradition, SAC 2018 offered a relaxed and collegial atmosphere for researchers to present and discuss new results.

There are four areas covered at each SAC conference. Three of them are permanent:

- Design and analysis of symmetric key primitives and cryptosystems, including block and stream ciphers, hash functions, MAC algorithms, and authenticated encryption schemes
- Efficient implementations of symmetric and public key algorithms
- Mathematical and algorithmic aspects of applied cryptology

A fourth area varies from year to year, and the special selected topic for SAC 2018 was “Cryptography for the Internet of Things.”

SAC 2018 received a total of 57 submissions, out of which the Program Committee (PC) selected 22 papers for presentation. The review process was thorough, with each submission receiving the attention of at least three reviewers (at least four for submissions involving a PC member). We would like to thank all authors for their submissions, and are very grateful to the PC members and reviewers for their effort and contribution to the selection of a high-quality program for SAC 2018.

There were three invited talks. The Stafford Tavares Lecture was given by Adi Shamir, who presented “Machine Learning in Security: Applications and Implications.” The second invited talk was given by Andrey Bogdanov, who spoke about “Whitebox Cryptography.” This year, in honor of its 25th anniversary, SAC had a special third invited talk by Carlisle Adams, who presented “SAC<sup>25</sup>: A Retrospective.” Stafford Tavares, one of the co-founders of SAC, was also a special invited guest, and gave a retrospective presentation of SAC at the conference banquet.

This year SAC also hosted what is now the fourth iteration of the SAC Summer School (S3). S3 is intended to be a place where early-career researchers can increase their knowledge of cryptography through instruction by, and interaction with, leading researchers in the field. We were fortunate to have Daniel J. Bernstein (Cryptographic Software Engineering), Andrey Bogdanov (Design of Lightweight Symmetric-Key Algorithms), Francesco Regazzoni (Cryptographic Hardware Engineering), and Meltem Sonmez Turan (Applications and Standardization of Lightweight Cryptography). We would like to express our sincere gratitude to these four presenters for dedicating their time and effort to what has become a highly anticipated and highly beneficial event for all participants.

A special thanks also goes to the team at the University of Calgary Conference Services, our technical and administrative support (Coral Burns, Mitra Mottaghi, and

Humaira Waqar), and our local student volunteers (Sepideh Avizheh, Shuai Li, Simpy Parveen, and Randy Yee) for their tireless support to the organisation of SAC 2018, both before and during the conference. Finally, we are very grateful to our sponsors, the Communications Security Establishment, Alberta Innovates, the Institute for Security, Privacy and Information Assurance, the Pacific Institute for the Mathematical Sciences, Springer, and the University of Calgary's Department of Computer Science, Faculty of Science, and Office of the Vice-President (Research), whose enthusiastic support (both financial and otherwise) greatly contributed to the success of SAC 2018.

November 2018

Carlos Cid  
Michael J. Jacobson, Jr.

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