3rd Skinny Cryptanalysis Competition

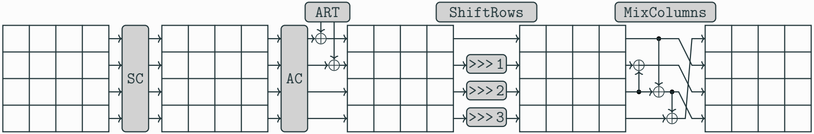
C. Beierle, J. Jean, S. Kölbl, G. Leander, A. Moradi,T. Peyrin, Y. Sasaki, P. Sasdrich and S.M. Sim

March 27th, 2019

Skinny Competition

Skinny

- Lightweight Tweakable Block Cipher
- Blocksize: 64- or 128-bit
- Tweakey: n, $2n$ or $3n$
- Received extensive cryptanalysis (20+ papers)



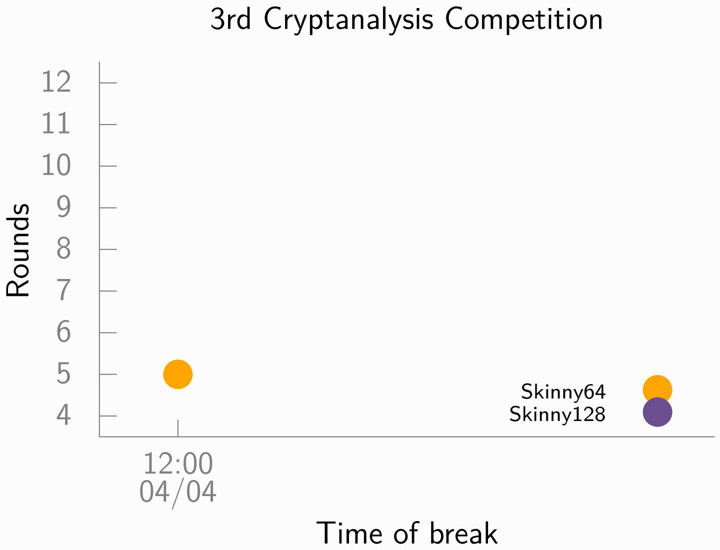
https://sites.google.com/site/skinnycipher/

Skinny Competition

3rd Competition

- Targets: Skinny64 and Skinny128 (using 128-bit keys)
- 2^{20} plaintext/ciphertext pairs available
- Plaintexts are not random
- Goal: Recover the secret key

Skinny Competition



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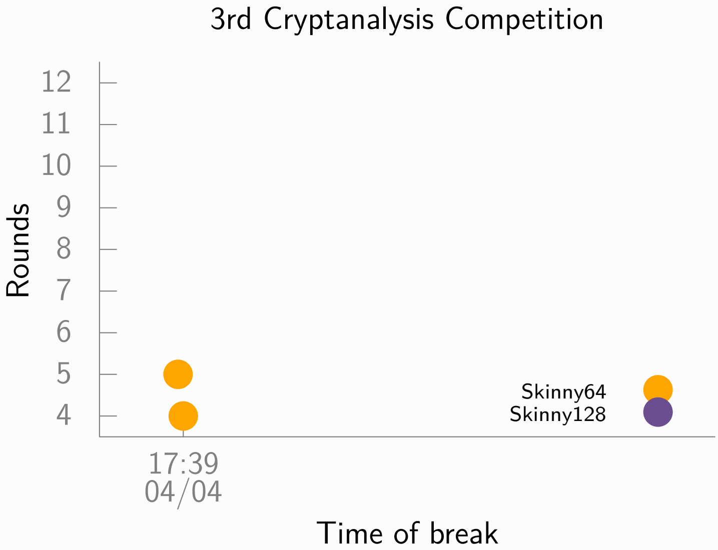

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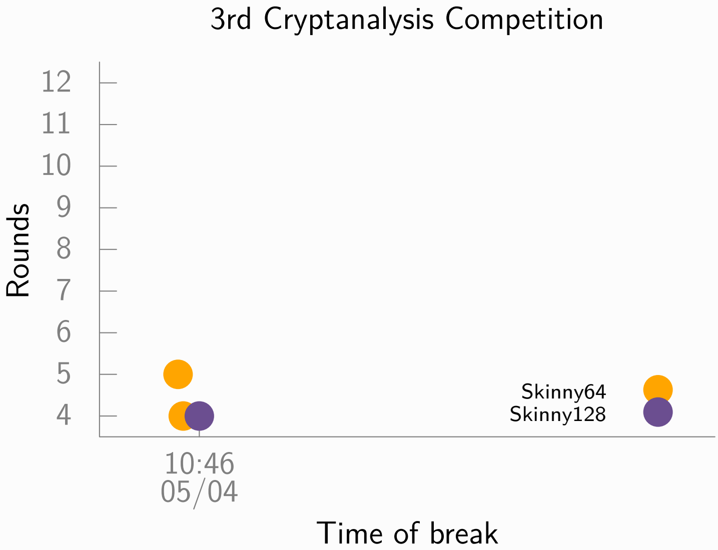

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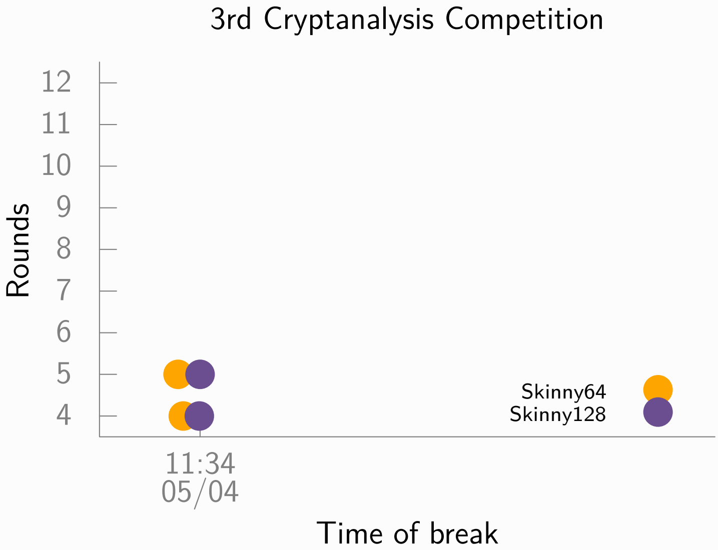

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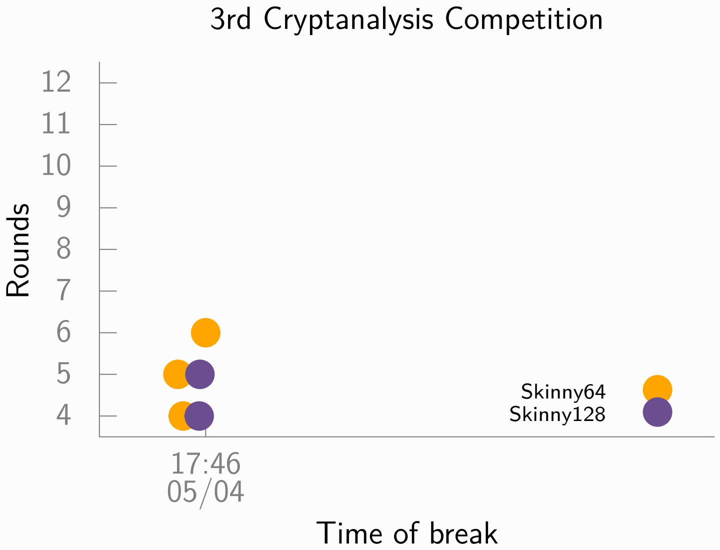

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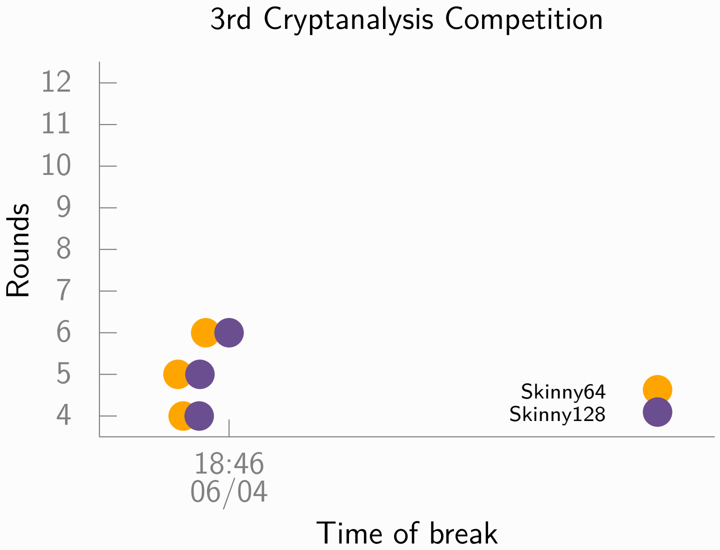

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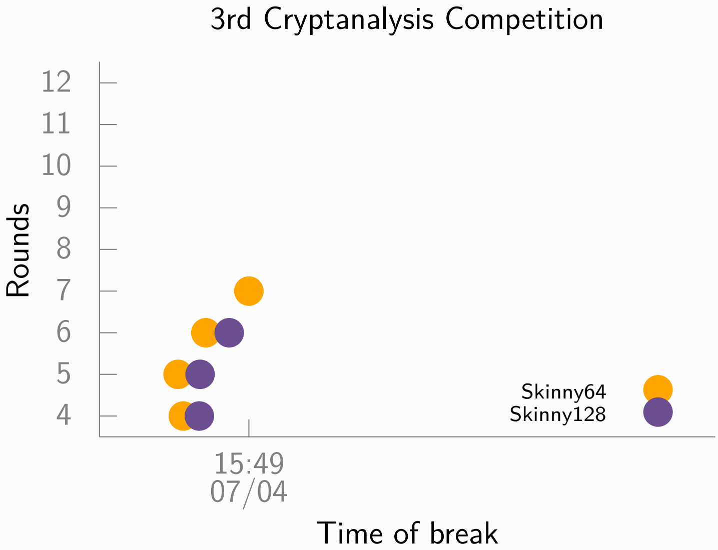

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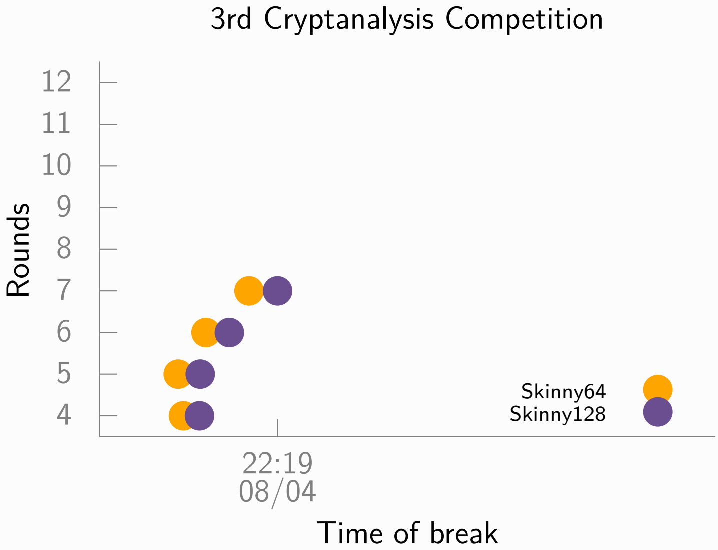

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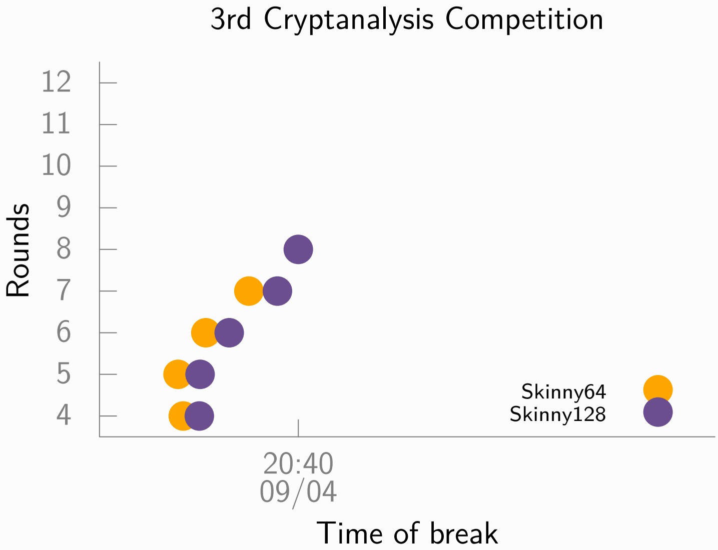

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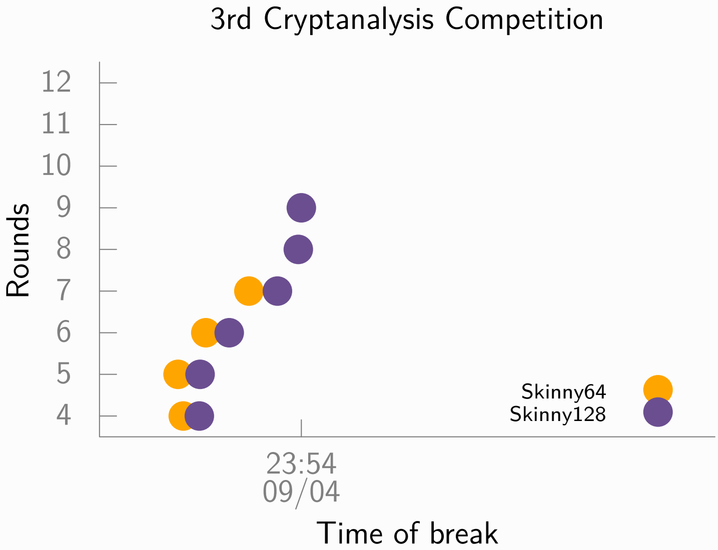

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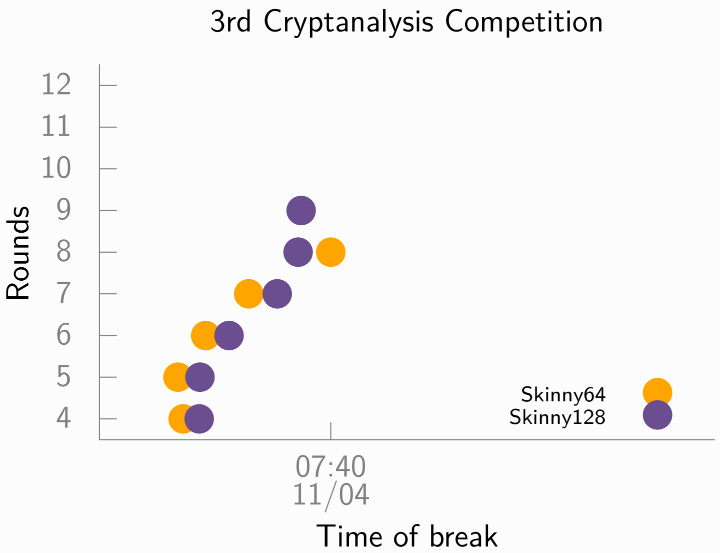

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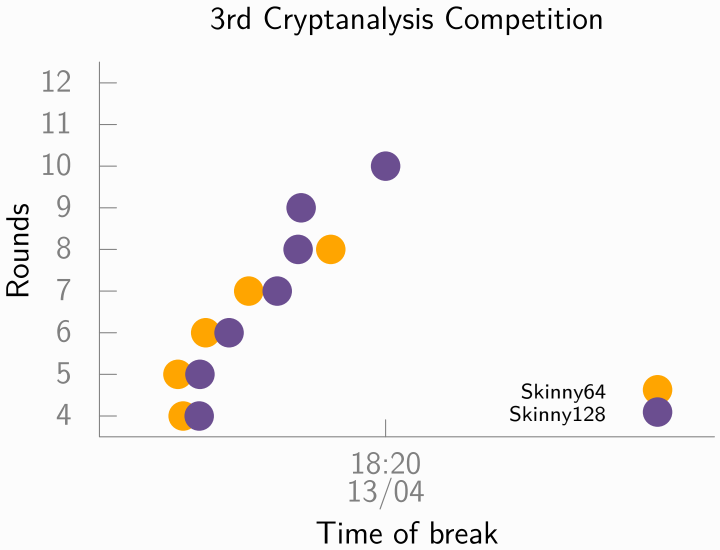

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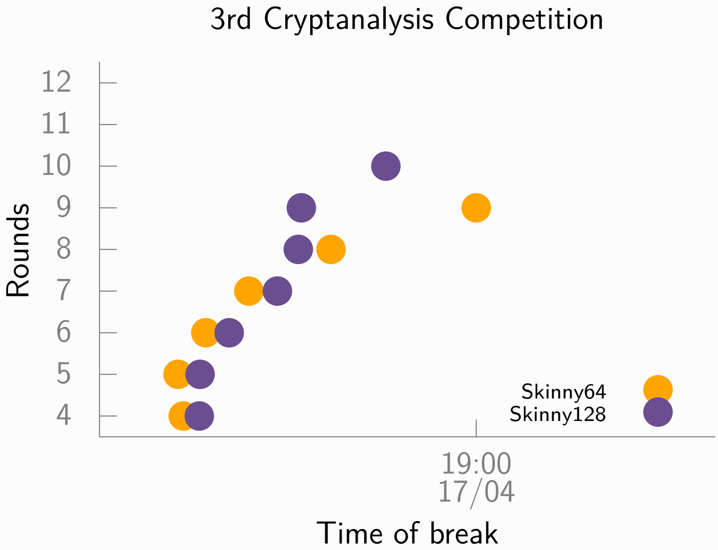

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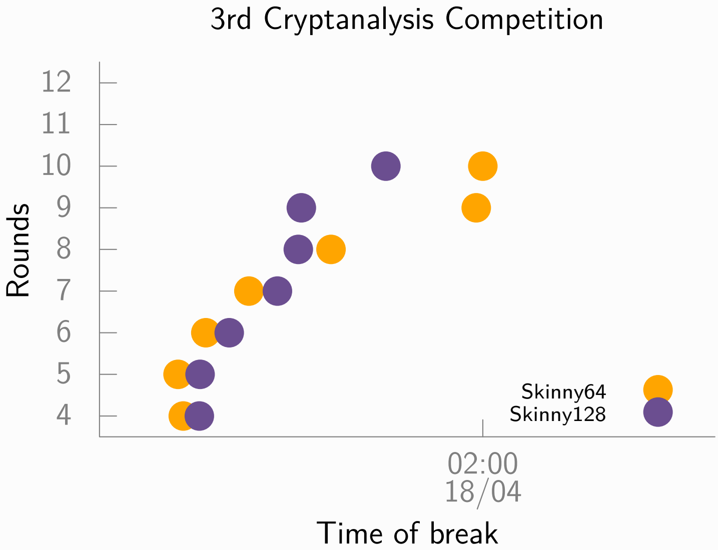

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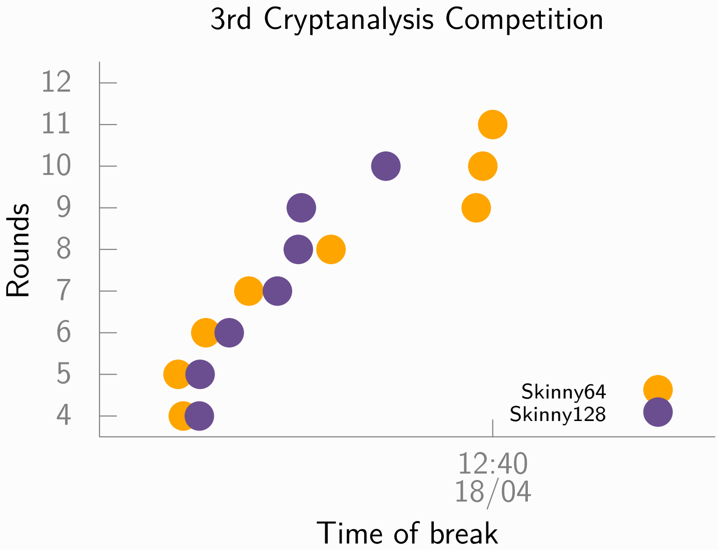

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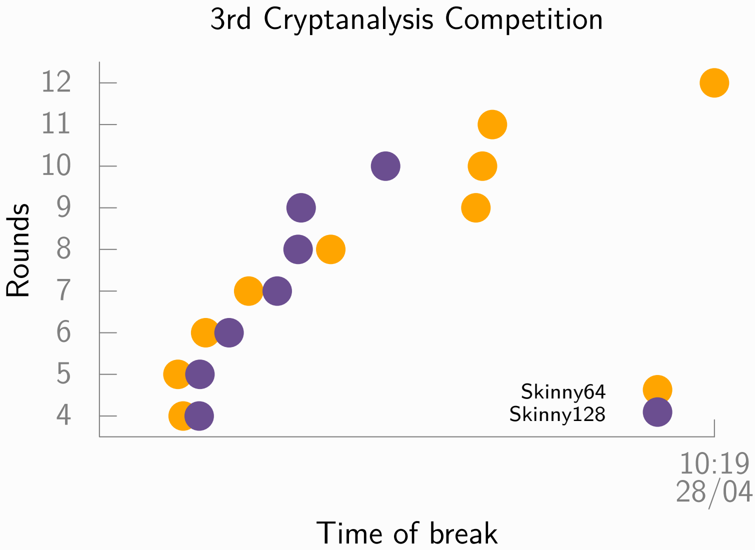

Skinny Competition

Winner Skinny 64

- Patrick Derbez and Virginie Lallemand
- 12 rounds

Skinny Competition

Winner Skinny 64

- Patrick Derbez and Virginie Lallemand
- 12 rounds

Winner Skinny 128

- Aleksei Udovenko
- 10 rounds

Skinny Competition

Most interesting cryptanalysis

- Patrick Derbez and Virginie Lallemand
- Breaking 12 rounds of Skinny64
- Truncated Differentials exploiting bias in data
- $\approx 2^{51.59}$ operations

Thank you to all the participants!

`https://sites.google.com/site/skinnycipher/`

Challenges are still available!