Complementing CLEFIA-128

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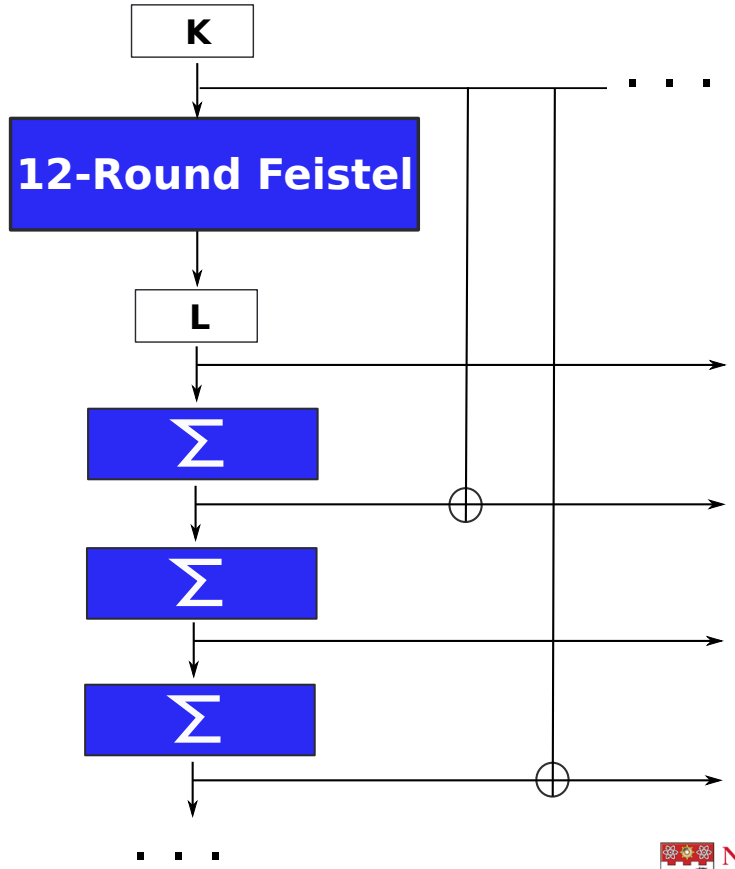
Specifications

CLEFIA-128:

- four-branch generalized Feistel cipher
- 128-bit key
- 18 rounds
- Feistel round = XOR of subkey + transformation

Key Schedule



Key Schedule

- 2^{14} good $(\Delta K, \Delta L)$
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-
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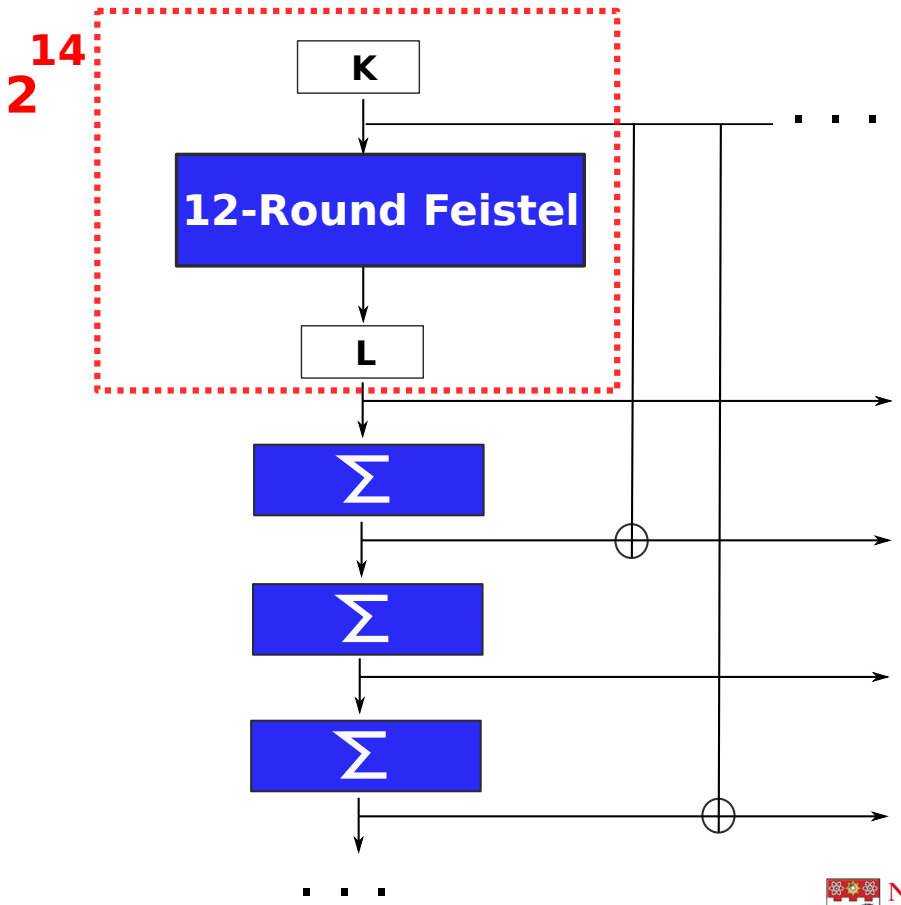

Key Schedule

- 2^{14} good $(\Delta K, \Delta L)$
- **Can be split on** $2^7 \cdot 2^7$
-
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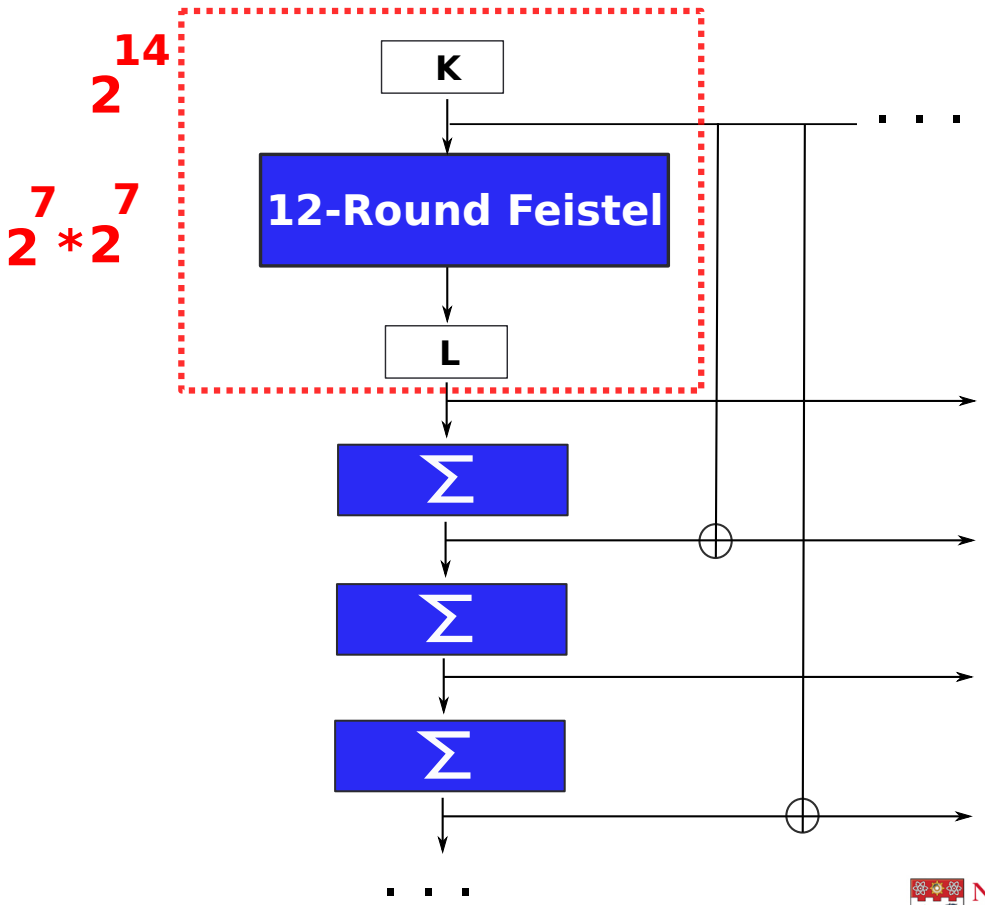

Key Schedule

- 2^{14} good $(\Delta K, \Delta L)$
- **Can be split on** $2^7 \cdot 2^7$
- Two structures of 2^7 (plaintext,keys)
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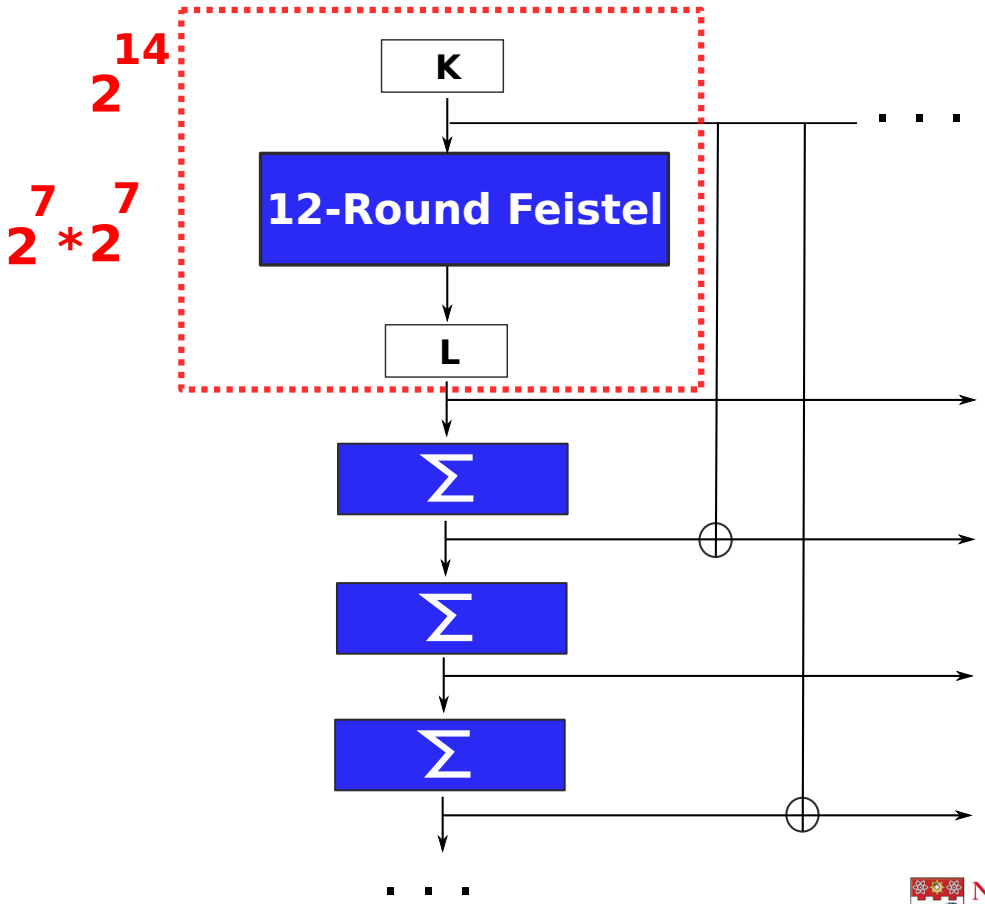
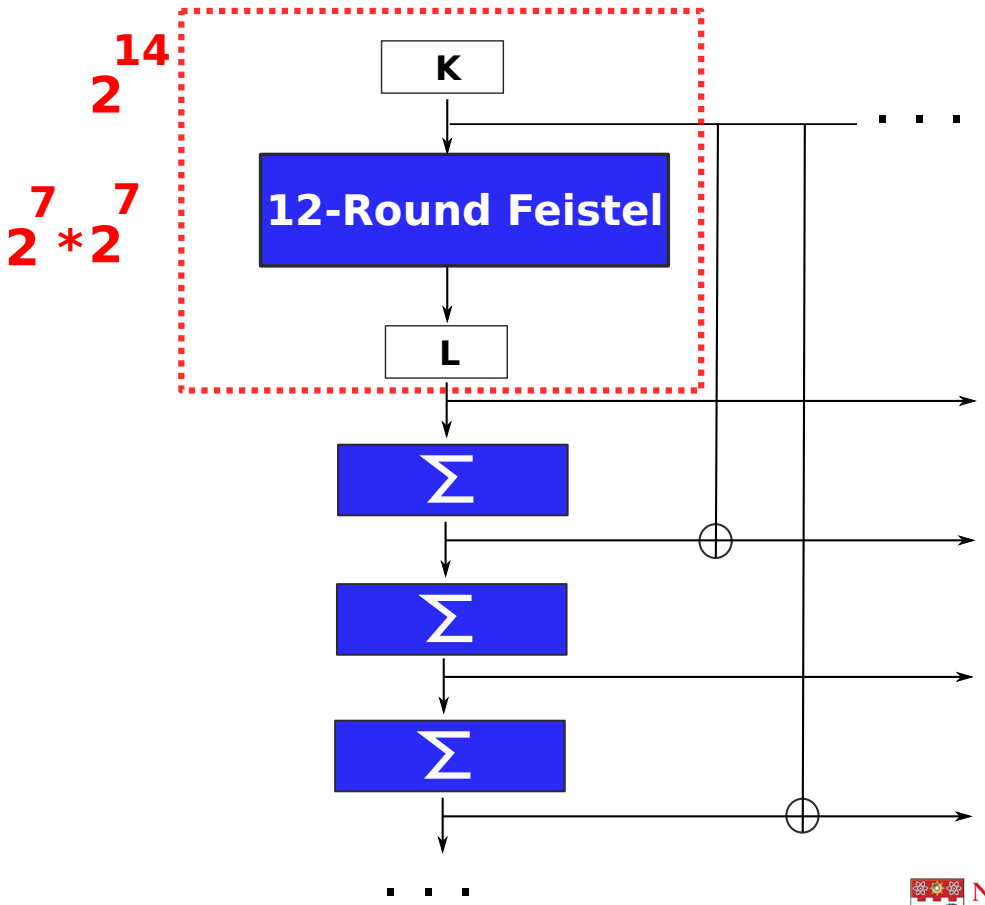


Key Schedule

- 2^{14} good $(\Delta K, \Delta L)$
- **Can be split on** $2^7 \cdot 2^7$
- Two structures of 2^7 (plaintext,keys)
- Check on collisions = save factor 2^7



Results

Full-round CLEFIA-128

- Weak-key class of 2^{14} keys
- Related-key distinguisher with $2^{122.5}$ encryptions, and 2^{122} data

Similar results for CLEFIA-256