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Present

Share

Background

Layout

Theme

Transition

2

1

2

3

4

5

2

3

4

5

6

7

8

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Lecture Overview

- Anonymity & Privacy in blockchain protocols.
  - Bitcoin and CoinJoin transactions.
  - Mix-nets
  - group and ring signatures.
    - Cryptonote/Monero
  - Zero-knowledge proofs & SNARKs
    - Zcash.

Pseudonymity vs. Anonymity

- Pseudonymity: identities are substituted by tags that are independently assigned to each identity.
- Anonymity: any action performed is manifested within a set of indistinguishably acting participants. (The anonymity set)

Privacy and Bitcoin

- Users can create accounts -practically- without cost and without association to previous accounts.
- Essentially they can create an unlimited number of pseudonyms.

Transaction Graph Analysis

Common Behaviours

Fungibility and Privacy

- Coins are interchangeable.
- Since each "satoshi" has its whole history in the bitcoin blockchain, its fungibility is debatable.

Anonymising Transactions

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