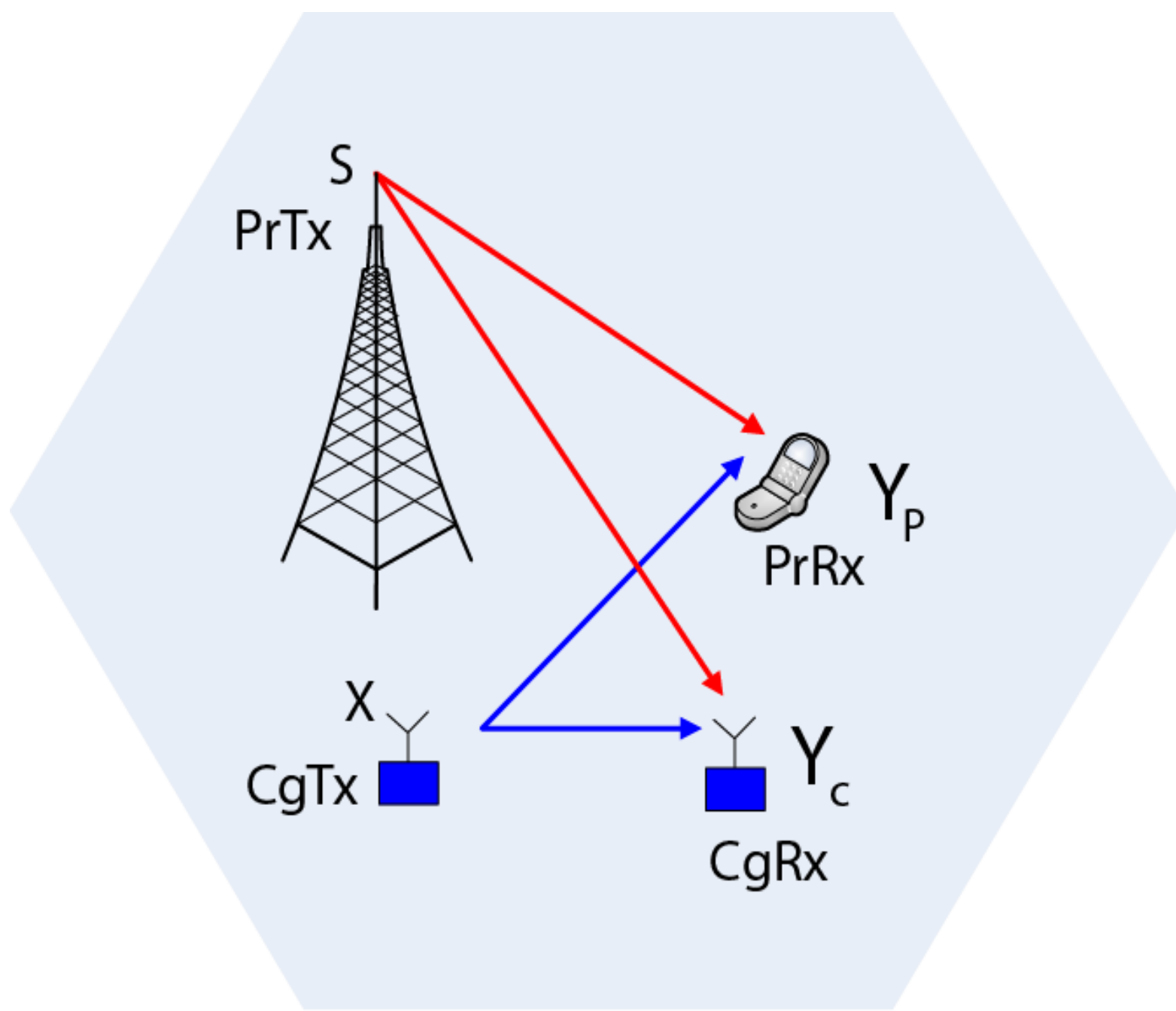


Jointly cooperative decode-and-forward relaying for secondary spectrum access

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Electrical Engineering/System

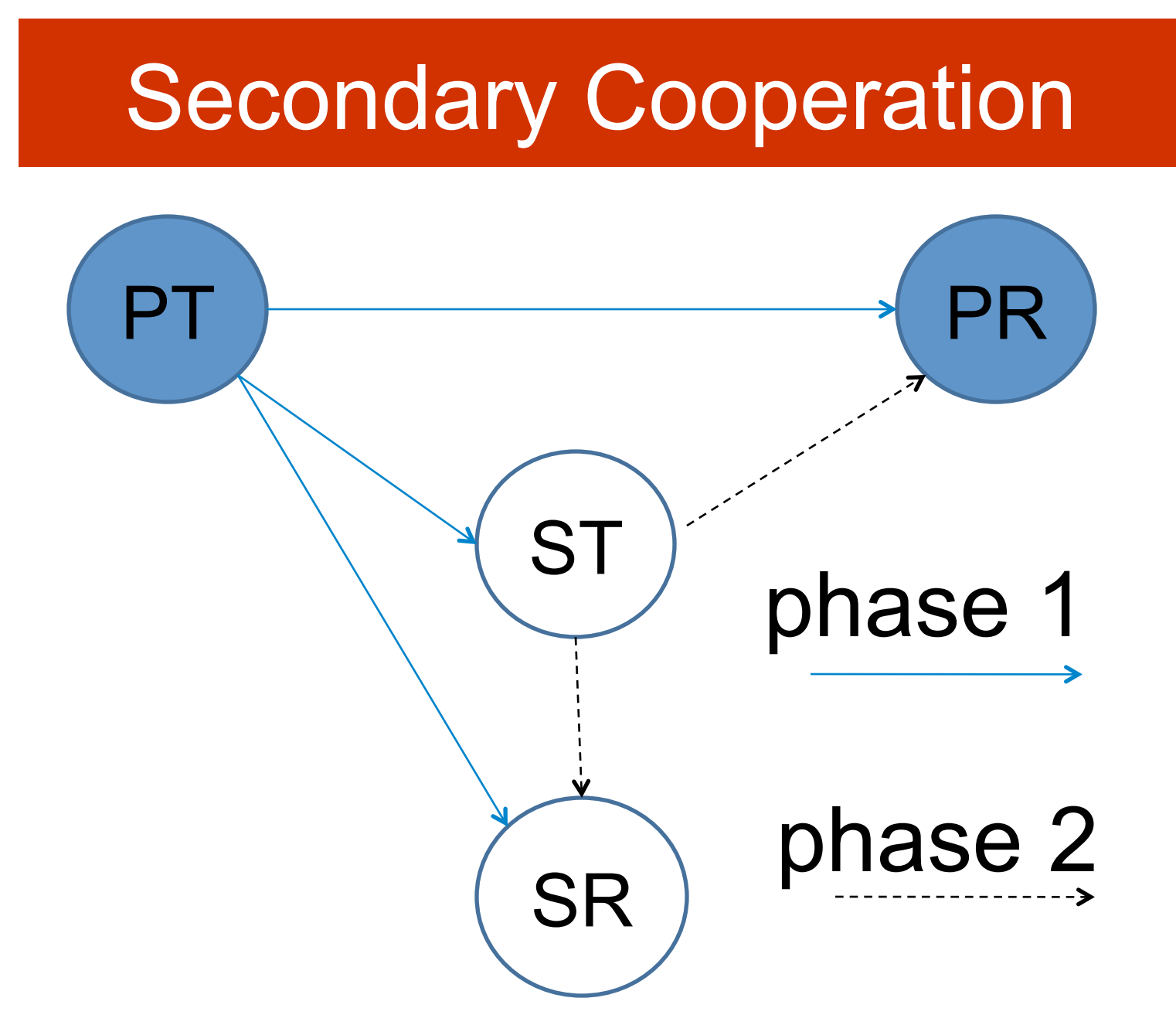


Cognitive radio

- Why ?
 - Dense spectrum allocation
 - Low spectrum utilization
- How ?
 - Opportunistic spectrum access
 - Spectrum sharing

Challenges

- Spectrum sensing
- Limited secondary power
- Solution:
 - Cooperation



Joint cooperation

- PT willing to relay secondary message
- Decoding failure at ST triggers a retransmission

System Markov chain and decoding strategy

$E_1(i)$: PT decodes i th secondary message

$E_2(i)$: ST decodes i th primary message

$S_1: \overline{E_1(i-1)}E_2(i)E_1(i)$

$S_2: \overline{E_1(i-1)}E_2(i)\overline{E_1(i)}$

$S_3: \overline{E_1(i-1)}\overline{E_2(i)}E_1(i)$

$S_4: \overline{E_1(i-1)}\overline{E_2(i)}\overline{E_1(i)}$

$S_5: \overline{E_1(i-1)}E_2(i)\overline{E_1(i)}$

$S_6: \overline{E_1(i-1)}E_2(i)E_1(i)$

Performance evaluation

