

CLAIMS

What is claimed is:

1. ~~—A method for wireless communication, comprising:
receiving an indication of an uplink control channel configuration;
identifying uplink control information (UCI) for transmission during a first
uplink portion of a transmission time interval (TTI) that has a downlink portion, the first
uplink portion, and a second uplink portion, wherein the first uplink portion has a longer
duration than the second uplink portion; and
transmitting the UCI during the first uplink portion or the second uplink
portion of the TTI according to the uplink control channel configuration.~~
2. ~~—The method of claim 1, further comprising:
transmitting an indication of user equipment (UE) capability, wherein the
indication of the uplink control channel configuration is based at least in part on the UE
capability.~~
3. ~~—The method of claim 1, further comprising:
determining a hopping pattern for transmission of the UCI within the first
uplink portion, the hopping pattern selected from a set of hopping patterns based at least in
part on a payload size of the UCI.~~
4. ~~—The method of claim 3, further comprising:
determining a symbol index for a demodulation reference signal (DMRS) for
the hopping pattern, wherein the symbol index comprises a same value for each hopping
pattern of the set of hopping patterns.~~
5. ~~—The method of claim 1, wherein at least a portion of an uplink control
channel having the uplink control channel configuration overlaps at least a portion of a gap
interval between the downlink portion and the first uplink portion of the TTI.~~
6. ~~—The method of claim 5, wherein the uplink control channel
configuration comprises a first code for multiplexing UEs during the gap interval and a
second code for multiplexing UEs during the first uplink portion of the TTI.~~
7. ~~—The method of claim 1, wherein transmitting the UCI comprises:~~

transmitting a first portion of the UCI during the first uplink portion and a second portion during the second uplink portion of the TTI.

8.——The method of claim 1, wherein receiving the indication comprises: receiving the indication via a physical layer message.

9.——The method of claim 8, wherein the physical layer message comprises at least one of a physical control format indicator channel (PCFICH) or a physical downlink control channel (PDCCH).

10.——The method of claim 8, wherein the physical layer message comprises a UE-specific PDCCH message or a common PDCCH message.

11.——The method of claim 8, wherein the uplink control channel configuration is based at least in part on a number of symbols of the downlink portion of the TTI occupied by the PDCCH or a number of symbols of the second uplink portion of the TTI, or both.

12.——The method of claim 1, wherein the indication indicates a number of orthogonal frequency division multiplexing (OFDM) symbols of the uplink control channel configuration, a number of OFDM symbols of the first uplink portion of the TTI, a number of OFDM symbols of the second uplink portion of the TTI, or a number of OFDM symbols of the downlink portion of the TTI, or any combination thereof.

13.——The method of claim 1, wherein the indication is received via a system information block (SIB) or radio resource control (RRC) signaling.

14.——A method for wireless communication, comprising:
transmitting an indication of an uplink control channel configuration; and
receiving uplink control information (UCI) according to the uplink control channel configuration during a first uplink portion or a second uplink portion of a transmission time interval (TTI) that has a downlink portion, the first uplink portion, and the second uplink portion, wherein the first uplink portion has a longer duration than the second uplink portion.

15.——The method of claim 14, further comprising:

receiving an indication of a user equipment (UE) capability, wherein the indication of the uplink control channel configuration is based at least in part on the UE capability.

16.—The method of claim 14, further comprising:

determining a hopping pattern for transmission of the UCI within the first uplink portion, the hopping pattern selected from a set of hopping patterns based at least in part on a payload size of the UCI.

17.—The method of claim 14, wherein receiving the UCI comprises:

receiving at least a first portion of the UCI during the first uplink portion and a second portion during the second uplink portion of the TTI.

18.—The method of claim 14, wherein transmitting the indication

comprises:

transmitting the indication via a physical layer message.

19.—The method of claim 18, wherein the physical layer message comprises

at least one of a physical control format indicator channel (PCFICH) or a physical downlink control channel (PDCCH).

20.—The method of claim 14, wherein the indication indicates a number of

orthogonal frequency division multiplexing (OFDM) symbols of the uplink control channel configuration, a number of OFDM symbols of the first uplink portion of the TTI, a number of OFDM symbols of the second uplink portion of the TTI, or a number of OFDM symbols of the downlink portion of the TTI, or any combination thereof.

21.—The method of claim 18, wherein the physical layer message comprises

a UE-specific PDCCH message or a common PDCCH message.

22.—The method of claim 18, wherein the uplink control channel

configuration is based at least in part on a number of symbols of the downlink portion of the TTI occupied by the PDCCH or a number of symbols of the second uplink portion of the TTI, or both.

23.—The method of claim 14, wherein the indication is transmitted via a

system information block (SIB) or radio resource control (RRC) signaling.

24. — ~~An apparatus for wireless communication, comprising:
 means for receiving an indication of an uplink control channel configuration;
 means for identifying uplink control information (UCI) for transmission
 during a first uplink portion or a second uplink portion of a transmission time interval (TTI)
 that has a downlink portion, the first uplink portion, and the second uplink portion, wherein
 the first uplink portion has a longer duration than the second uplink portion; and
 means for transmitting the UCI during the first uplink portion or the second
 uplink portion of the TTI according to the uplink control channel configuration.~~

25. — ~~The apparatus of claim 24, further comprising:
 means for transmitting an indication of user equipment (UE) capability;
 wherein the indication of the uplink control channel configuration is based at least in part on
 the UE capability.~~

26. — ~~The apparatus of claim 24, further comprising:
 means for determining a hopping pattern for transmission of the UCI within
 the first uplink portion, the hopping pattern selected from a set of hopping patterns based at
 least in part on a payload size of the UCI.~~

27. — ~~The apparatus of claim 24, wherein the indication is received via a
 physical layer message or a system information block (SIB) or radio resource control (RRC)
 signaling.~~

28. — ~~An apparatus for wireless communication, comprising:
 means for transmitting an indication of an uplink control channel
 configuration; and
 means for receiving uplink control information (UCI) according to the uplink
 control channel configuration during a first uplink portion or a second uplink portion of a
 transmission time interval (TTI) that has a downlink portion, the first uplink portion, and the
 second uplink portion, wherein the first uplink portion has a longer duration than the second
 uplink portion.~~

29. — ~~An apparatus for wireless communication, comprising:
 ————— a processor;
 ————— memory in electronic communication with the processor; and~~

— instructions stored in the memory and executable by the processor to cause the apparatus to:

receive an indication of an uplink control channel configuration;
 identify uplink control information (UCI) for transmission during a first uplink portion or a second uplink portion of a transmission time interval (TTI) that has a downlink portion, the first uplink portion, and the second uplink portion, wherein the first uplink portion has a longer duration than the second uplink portion;
 and

transmit the UCI during the first uplink portion or the second uplink portion of the TTI according to the uplink control channel configuration.

30. — An apparatus for wireless communication, comprising:

— a processor;

— memory in electronic communication with the processor; and

— instructions stored in the memory and executable by the processor to cause the apparatus to:

transmit an indication of an uplink control channel configuration; and
 receive uplink control information (UCI) according to the uplink control channel configuration during a first uplink portion or a second uplink portion of a transmission time interval (TTI) that has a downlink portion, the first uplink portion, and the second uplink portion, wherein the first uplink portion has a longer duration than the second uplink portion.

31. — A non-transitory computer-readable medium storing code for wireless communication, the code comprising instructions executable by a processor to:

receive an indication of an uplink control channel configuration;
 identify uplink control information (UCI) for transmission during a first uplink portion or a second uplink portion of a transmission time interval (TTI) that has a downlink portion, the first uplink portion, and the second uplink portion, wherein the first uplink portion has a longer duration than the second uplink portion; and

transmit the UCI during the first uplink portion or the second uplink portion of the TTI according to the uplink control channel configuration.

32. — A non-transitory computer-readable medium storing code for wireless communication, the code comprising instructions executable by a processor to:

transmit an indication of an uplink control channel configuration; and
 receive uplink control information (UCI) according to the uplink control
 channel configuration during a first uplink portion or a second uplink portion of a
 transmission time interval (TTI) that has a downlink portion, the first uplink portion, and the
 second uplink portion, wherein the first uplink portion has a longer duration than the second
 uplink portion.

33.—A method for wireless communication, comprising:
 identifying uplink control information (UCI) for transmission;
 determining a set of uplink resources for transmission of the UCI based at
 least in part on a payload size of the UCI; and
 transmitting the UCI using the set of uplink resources.

34.—The method of claim 33, wherein the set of uplink resources comprises
 at least one of a set of physical uplink control channel (PUCCH) resources and a set of
 physical uplink shared channel (PUSCH) resources.

35.—The method of claim 33, wherein the set of uplink resources comprises
 a plurality of channel structures or a plurality of coding schemes, or both.

36.—The method of claim 33, further comprising:
 segmenting the UCI using a plurality of polar codes, wherein transmitting the
 UCI is based at least in part on the segmenting.

37.—The method of claim 33, further comprising:
 comparing the payload size of the UCI to one or more payload thresholds,
 wherein the set of uplink resources is determined based at least in part on the comparing.

38.—The method of claim 37, wherein the set of resources comprises an
 uplink control channel having a first duration, an uplink control channel having a second
 duration longer than the first duration, an uplink shared channel having a third duration, or an
 uplink shared channel having a fourth duration that is longer than the third duration in a
 system that supports uplink transmission time interval (TTIs) of the first, second, third, and
 fourth durations.

39.—A method for wireless communication, comprising:

identifying a set of resources for reception of uplink control information (UCI) from a user equipment (UE), wherein the set of resources are determined based at least in part on a payload size of the UCI; and

receiving, over the set of resources, the UCI from the UE.

40.—The method of claim 39, wherein the set of resources comprises at least one of a set of physical uplink control channel (PUCCH) resources and a set of physical uplink shared channel (PUSCH) resources.

41.—The method of claim 39, wherein the set of resources comprises a plurality of channel structures or a plurality of coding schemes, or both.

42.—The method of claim 39, wherein receiving the UCI comprises: receiving multiple segments of the UCI using a plurality of polar codes.

43.—The method of claim 39, wherein the set of resources comprises an uplink control channel having a first duration, an uplink control channel having a second duration longer than the first duration, an uplink shared channel having a third duration, or an uplink shared channel having a fourth duration that is longer than the third duration in a system that supports uplink transmission time interval (TTIs) of the first, second, third, and fourth durations.

44.—An apparatus for wireless communication, comprising:
means for identifying uplink control information (UCI) for transmission;
means for determining a set of uplink resources for transmission of the UCI based at least in part on a payload size of the UCI; and
means for transmitting the UCI using the set of uplink resources.

45.—The apparatus of claim 44, further comprising:
means for comparing the payload size of the UCI to one or more payload thresholds, wherein the set of uplink resources is determined based at least in part on the comparison.

46.—An apparatus for wireless communication, comprising:

~~means for identifying a set of resources for reception of uplink control information (UCI) from a user equipment (UE), wherein the set of resources are determined based at least in part on a payload size of the UCI; and~~

~~means for receiving, over the set of resources, the UCI from the UE.~~

47. — An apparatus for wireless communication, comprising:

~~_____ a processor;~~

~~_____ memory in electronic communication with the processor; and~~

~~_____ instructions stored in the memory and executable by the processor to cause the apparatus to:~~

~~identify uplink control information (UCI) for transmission;~~

~~determine a set of uplink resources for transmission of the UCI based at least in part on a payload size of the UCI; and~~

~~transmit the UCI using the set of uplink resources.~~

48. — An apparatus for wireless communication, comprising:

~~_____ a processor;~~

~~_____ memory in electronic communication with the processor; and~~

~~_____ instructions stored in the memory and executable by the processor to cause the apparatus to:~~

~~identify a set of resources for reception of uplink control information (UCI) from a user equipment (UE), wherein the set of resources are determined based at least in part on a payload size of the UCI; and~~

~~receive, over the set of resources, the UCI from the UE.~~

49. — A non-transitory computer-readable medium storing code for wireless communication, the code comprising instructions executable by a processor to:

~~identify uplink control information (UCI) for transmission;~~

~~determine a set of uplink resources for transmission of the UCI based at least in part on a payload size of the UCI; and~~

~~transmit the UCI using the set of uplink resources.~~

50. — A non-transitory computer-readable medium storing code for wireless communication, the code comprising instructions executable by a processor to:

~~identify a set of resources for reception of uplink control information (UCI)
from a user equipment (UE), wherein the set of resources are determined based at least in part
on a payload size of the UCI; and~~

~~receive, over the set of resources, the UCI from the UE.~~

1. An invention not claimed in any divisional application.