

**CLAIMS**

1. A method of wireless communication, comprising:  
transmitting (704) first data on a downlink data channel during a first transmission time interval, TTI, characterized by:  
transmitting (508) control information on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a grant modification configured to modify a grant of time–frequency resources for the first data received on the downlink data channel during the first TTI,  
wherein the second TTI overlaps with a portion of the first TTI.
2. The method of claim 1, further comprising transmitting second data on the downlink data channel utilizing a TTI having the duration of the second TTI.
3. The method of claim 2, wherein the transmitting control information on the downlink control channel and the transmitting second data on the downlink data channel are performed at the same time.
4. The method of claim 2, further comprising orthogonally multiplexing the second data with the first data on the downlink data channel by puncturing the first data with the second data in accordance with the control information on the downlink control channel.
5. The method of claim 4, further comprising modifying the first data to account for lost downlink resources corresponding to the puncturing.
6. The method of claim 2, further comprising non-orthogonally multiplexing the second data with the first data on the downlink data channel by simultaneously transmitting the first data and the second data.

7. The method of claim 1, further comprising:  
transmitting a resource assignment on a downlink assignment channel, the resource assignment comprising the grant of time–frequency resources corresponding to the first data.
8. The method of claim 1, wherein the downlink data channel is separated in frequency from the downlink control channel.
9. A method of wireless communication, comprising:  
receiving (1104) first data on an uplink data channel during a first transmission time interval, TTI;  
receiving (909) a scheduling request on an uplink feedback channel, the scheduling request being configured to request a grant of time–frequency resources for second data, characterized by:  
transmitting (1106) control information on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a second data grant for time–frequency resources corresponding to the second data on the uplink data channel during the second TTI, wherein the second TTI overlaps with a portion of the first TTI; and  
receiving (1108) the second data on the uplink data channel during a third TTI shorter in duration than the first TTI.
10. The method of claim 9, further comprising:  
transmitting a resource assignment on a downlink assignment channel, the resource assignment comprising a first data grant for time–frequency resources on the uplink data channel corresponding to the first data; and  
transmitting an uplink grant modification utilizing a TTI having the duration of the second TTI, the uplink grant modification comprising information notifying at least one user equipment, UE, that the first data grant is modified, and instructing the at least one UE to puncture transmissions of the first data in accordance with a timing of the second data.

11. The method of claim 10, wherein the transmitting the uplink grant modification and the transmitting the control information on the downlink control channel are performed at the same time.

12. The method of claim 10, wherein the transmitting the uplink grant modification comprises transmitting the uplink grant modification on the downlink control channel.

13. The method of claim 9, wherein the uplink feedback channel, the uplink data channel, and the downlink control channel are separated in frequency from one another.

14. An apparatus (202) configured for wireless communication, comprising:  
means (310) for transmitting first data on a downlink data channel during a first transmission time interval, TTI, characterized by:

means (310) for transmitting control information on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a grant modification configured to modify an allocation of a grant of time–frequency resources for the first data received on the downlink data channel during the first TTI,  
wherein the second TTI overlaps with a portion of the first TTI.

15. An apparatus (202) configured for wireless communication, comprising:  
means (310) for receiving first data on an uplink data channel during a first transmission time interval, TTI;

means (310) for receiving a scheduling request on an uplink feedback channel, the scheduling request being configured to request a grant of time–frequency resources for second data, characterized by:

means (310) for transmitting control information on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a second data grant for time–frequency resources corresponding to the second data on the uplink data channel during the second TTI, wherein the second TTI overlaps with a portion of the first TTI;  
and

means (310) for receiving the second data on the uplink data channel during a third TTI shorter in duration than the first TTI.

16. A computer-readable medium (306) comprising computer-executable code, comprising instructions which, when executed by a computer to cause the computer to:

transmit first data on a downlink data channel during a first transmission time interval, TTI, characterized by:

transmit control information on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a grant modification configured to modify a grant of time–frequency resources for the first data received on the downlink data channel during the first TTI,

wherein the second TTI overlaps with a portion of the first TTI.

17. A computer-readable medium (306) comprising computer-executable code, comprising instructions which, when executed by a computer to cause the computer to:

receive first data on an uplink data channel during a first transmission time interval, TTI;;  
receive a scheduling request on an uplink feedback channel, the scheduling request being configured to request a grant of time–frequency resources for second data, characterized by:

transmit control information on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a second data grant for time–frequency resources corresponding to the second data on the uplink data channel during the second TTI, wherein the second TTI overlaps with a portion of the first TTI; and

receive the second data on the uplink data channel during a third TTI shorter in duration than the first TTI.

18. A method of wireless communication at a user equipment, UE, (502), comprising:

receiving first data (704) on a downlink data channel during a first transmission time interval, TTI, characterized by:

receiving control information (508) on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a grant modification configured to modify a grant of time-frequency resources for the first data received on the

downlink data channel during the first TTI, wherein the second TTI overlaps with a portion of the first TTI.

19. A method of wireless communication at a user equipment, UE, (1104), comprising:  
transmitting first data (1104) on an uplink data channel during a first transmission time interval, TTI;

transmitting (909) a scheduling request on an uplink feedback channel, the scheduling request being configured to request a grant of time-frequency resources for second data, characterized by:

receiving (1106) control information on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a second data grant for time-frequency resources corresponding to the second data on the uplink data channel during the second TTI, wherein the second TTI overlaps with a portion of the first TTI; and

transmitting (1108) the second data on the uplink data channel during a third TTI shorter in duration than the first TTI.

20. A user equipment (204) configured for wireless communication, comprising:  
means (410) for receiving first data (704) on a downlink data channel during a first transmission time interval, TTI, characterized by:

means (410) for receiving control information (508) on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a grant modification configured to modify a grant of time-frequency resources for the first data received on the downlink data channel during the first TTI, wherein the second TTI overlaps with a portion of the first TTI.

21. A user equipment (204) configured for wireless communication, comprising:  
means (410) for transmitting first data (1104) on an uplink data channel during a first transmission time interval, TTI;

means (410) for transmitting (909) a scheduling request on an uplink feedback channel, the scheduling request being configured to request a grant of time-frequency resources for second data, characterized by:

means (410) for receiving control information (1106) on a downlink control channel during a second TTI shorter in duration than the first TTI, the control information comprising a second data grant for time-frequency resources corresponding to the second data on the uplink data channel during the second TTI, wherein the second TTI overlaps with a portion of the first TTI; and

means (410) for transmitting the second data on the uplink data channel during a third TTI shorter in duration than the first TTI.