CLAIMS:

1. A method for transmitting data, characterized in comprising:

sending, by a first device using a first transmission mode, first data to a second device, the first data being grant-freely sent by the first device; and

performing, by the first device using a second transmission mode, retransmission of all or part of the first data when there is no acknowledgment (ACK) or negative-acknowledgement (NACK) indication being received from the second device after sending the first data to the second device, the second transmission mode being different from the first transmission mode,

wherein the sending, by a first device using a first transmission mode, first data to a second device comprises:

sending, by the first device using a first number of transmission layer, the first data to the second device, the first number of transmission layer being greater than 1;

the performing, by the first device using a second transmission mode, retransmission of all or part of the first data comprises:

performing, by the first device using a single layer transmission mode, the retransmission of all of the first data for multiple times, wherein part of the first data is transmitted each time.

2. The method according to claim 1, wherein the first data grant-freely sent by the first device is sent by the first device without receiving a scheduling grant from another device.

3. The method according to claim 1 or 2, wherein the sending, by a first device using a first transmission mode, first data to a second device further comprises:

sending, by the first device using a first antenna port, the first data to the second device;

the performing, by the first device using a second transmission mode, retransmission of all or part of the first data further comprises:

performing, by the first device using a second antenna port, the retransmission of all or part of the first data, the second antenna port being different from the first antenna port.

4. The method according to any one of claims 1 to 3, wherein the sending, by a first device using a first transmission mode, first data to a second device further comprises:

sending, by the first device using a first precoding matrix, the first data to the second device;

the performing, by the first device using a second transmission mode, retransmission of all or part of the first data further comprises:

performing, by the first device using a second precoding matrix, the retransmission of all or part of the first data, the second precoding matrix being different from the first precoding matrix.

5. The method according to claim 4, wherein the method further comprises:

acquiring, by the first device using a cycling manner, a precoding matrix used for each transmission of all or part of the first data from a preconfigured precoding matrix set.

6. The method according to any one of claims 1 to 5, wherein the sending, by a first device using a first transmission mode, first data to a second device further comprises:

sending, by the first device using a first beam, the first data to the second device;

the performing, by the first device using a second transmission mode, retransmission of all or part of the first data further comprises:

performing, by the first device using a second beam, the retransmission of all or part of the first data, the second beam being different from the first beam.

7. The method according to any one of claims 1 to 6, wherein the sending, by a first device using a first transmission mode, first data to a second device further comprises:

sending, by the first device using a first transmission power, the first data to the second device;

the performing, by the first device using a second transmission mode, retransmission of all or part of the first data further comprises:

performing, by the first device using a second transmission power, the retransmission of all or part of the first data, the second transmission power being different from the first transmission power.

8. The method according to any one of claims 1 to 7, wherein a transmission mode used by the first device for initial transmission or retransmission of the first data is pre-configured by the second device for the first device, or predetermined by the first device and the second device, or determined by the first device.

9. A device for transmitting data, characterized in comprising:

a communication module, configured to send, using a first transmission mode, first data to a second device, the first data being grant-freely sent by the device; and perform, using a second transmission mode, retransmission of all or part of the first data when there is no acknowledgment (ACK) or negative-acknowledgement (NACK) indication being received from the second device after sending the first data to the second device, the second transmission mode being different from the first transmission mode,

wherein the communication module is specifically configured to:

send, using a first number of transmission layer, the first data to the second device, the first number of transmission layer being greater than 1; and

perform, using a single layer transmission mode, the retransmission of all of the first data for multiple times, wherein part of the first data is transmitted each time.

10. The device according to claim 9, wherein the first data grant-freely sent by the device is sent by the device without receiving a scheduling grant from another device.

11. The device according to claim 9 or 10, wherein the communication module is further specifically configured to:

send, using a first antenna port, the first data to the second device; and perform, using a second antenna port, the retransmission of all or part of the first data, the second antenna port being different from the first antenna port.

12. The device according to any one of claims 9 to 11, wherein the communication module is further specifically configured to:

send, using a first precoding matrix, the first data to the second device; and perform, using a second precoding matrix, the retransmission of all or part of the first data, the second precoding matrix being different from the first precoding matrix.

13. The device according to claim 12, wherein the device further comprises:

an acquiring module, configured to acquire, using a cycling manner, a precoding matrix used for each transmission of all or part of the first data from a preconfigured precoding matrix set.

14. The device according to any one of claims 9 to 13, wherein the communication module is further specifically configured to:

send, using a first beam, the first data to the second device; and perform, using a second beam, the retransmission of all or part of the first data, the second beam being different from the first beam.

15. The device according to any one of claims 9 to 13, wherein the communication module is specifically configured to:

send, using a first transmission power, the first data to the second device; and perform, using a second transmission power, the retransmission of all or part of the first data, the second transmission power being different from the first transmission power.

16. The device according to any one of claims 9 to 15, wherein a transmission mode used by the device for initial transmission or retransmission of the first data is pre-configured by the second device for the device, or predetermined by the device and the second device, or

determined by the device.