

CLAIMS

What is claimed is:

1. A method for physical uplink control channel (PUCCH) transmission, comprising:

5 in a case that a first preset condition is met, determining, by a terminal device, a target parameter used for sending a PUCCH on a target PUCCH resource, wherein the target PUCCH resource has at least one activation parameter, the target parameter is one of the at least one activation parameter, and each of the at least one activation parameter comprises at least one of activated spatial relation
10 information and an activated power control parameter; and

 sending, by the terminal device, a PUCCH on the target PUCCH resource by using the target parameter,

 before the determining, by the terminal device, a target parameter used for sending a PUCCH on a target PUCCH resource, the method further comprises:

15 determining, by the terminal device, the at least one activation parameter of the target PUCCH resource based on first information from a network device; characterized in that

 the first information is used for determining an activation parameter of at least one PUCCH resource group to which the target PUCCH resource belongs, wherein different PUCCH resource groups to which the target PUCCH resource
20 belongs have different activation parameters.

2. The method according to claim 1, wherein before the determining, by the terminal device, the at least one activation parameter of the target PUCCH resource based on first information from a network device, the method further
25 comprises:

 receiving, by the terminal device, second information from the network device, wherein the second information is used for configuring at least one parameter for the target PUCCH resource or the at least one PUCCH resource group, and the at least one parameter comprises the at least one activation
30 parameter.

3. The method according to claim 1, wherein

the first information comprises one of a first medium access control control element (MAC CE) and first radio resource control (RRC) information.

4. The method according to any one of claims 1 to 3, wherein

the first preset condition comprises one of the following conditions:

5 first downlink control information (DCI) has been received by the terminal device from one transmission and reception point (TRP), wherein the first DCI is used to indicate that a PUCCH is to be transmitted on the target PUCCH resource;

a plurality of pieces of DCI have been received by the terminal device from a plurality of TRPs, wherein the plurality of pieces of DCI are used to indicate that a
10 PUCCH is to be transmitted on the target PUCCH resource; and

a time point for sending a PUCCH by using the target PUCCH resource has arrived, wherein the target PUCCH resource is a periodic resource or a semi-persistent resource.

5. The method according to claim 4, wherein the determining, by the terminal
15 device, a target parameter used for sending a PUCCH on a target PUCCH resource comprises:

selecting, by the terminal device, one activation parameter from the at least one activation parameter as the target parameter used for sending a PUCCH on the target PUCCH resource.

20 6. The method according to claim 5, wherein the selecting, by the terminal device, one activation parameter from the at least one activation parameter as the target parameter used for sending a PUCCH on the target PUCCH resource comprises:

in a case that PUCCH resources are not divided into groups, determining, by
25 the terminal device, a first activation parameter of the at least one activation parameter as the target parameter used for sending a PUCCH on the target PUCCH resource; wherein

the first activation parameter is one of the following activation parameters:

an activation parameter in correspondence with a first specified TRP;

30 an activation parameter in correspondence with a first specified object, wherein the first specified object comprises one of a specified resource, a specified channel, and a specified signal, and a value of a first preset parameter of the first specified object meets a second preset condition; and

an activation parameter whose second preset parameter with a value meeting a third preset condition,

wherein the first activation parameter is an activation parameter in correspondence with the first specified TRP, wherein when the first preset condition comprises that first DCI has been received from one TRP, the first specified TRP is a TRP that sends the first DCI; when the first preset condition comprises that a plurality of pieces of DCI have been received from a plurality of TRPs, the first specified TRP is a TRP with a first preset identifier in the plurality of TRPs; and when the first preset condition comprises that a time point for sending a PUCCH by using the target PUCCH resource has arrived and that the target PUCCH resource is a periodic resource or a semi-persistent resource, the first specified TRP is a TRP corresponding to a most recent transmission from/to the terminal device, wherein the most recent transmission comprises one of any most recent transmission, any most recent downlink transmission, any most recent uplink transmission, a most recent specified channel transmission, and a most recent specified signal transmission; or

the first activation parameter is an activation parameter whose second preset parameter with a value meeting the third preset condition; wherein the second preset parameter comprises a reference signal, and the value of the second preset parameter comprises at least one of a type and an index value of the reference signal; or the second preset parameter comprises a source reference signal, and the value of the second preset parameter comprises at least one of a type and an index value of the source reference signal; or

the first activation parameter is an activation parameter in correspondence with the first specified object, wherein when the first preset condition comprises that first DCI has been received from one TRP, the first specified object is a control resource set group in which the first DCI is located; when the first preset condition comprises that a plurality of pieces of DCI have been received from a plurality of TRPs, the first specified object is a control resource set group whose group identifier meets the second preset condition in a plurality of control resource set groups in which the plurality of pieces of DCI are located; and when the first preset condition comprises that a time point for sending a PUCCH by using the target PUCCH resource has arrived and that the target PUCCH resource is a periodic resource or a semi-persistent resource, the first specified object is a

control resource set group corresponding to a most recent transmission from/to the terminal device, and the most recent transmission comprises one of any most recent transmission, any most recent downlink transmission, any most recent uplink transmission, a most recent specified channel transmission, and a most recent specified signal transmission.

7. The method according to claim 5, wherein the selecting, by the terminal device, one activation parameter from the at least one activation parameter as the target parameter used for sending a PUCCH on the target PUCCH resource comprises:

in a case that PUCCH resources are divided into groups, determining, by the terminal device, a second activation parameter of the at least one activation parameter as the target parameter used for sending a PUCCH on the target PUCCH resource; wherein

the second activation parameter is an activation parameter of a specified PUCCH resource group, and the specified PUCCH resource group comprises the target PUCCH resource.

8. The method according to claim 7, wherein

the specified PUCCH resource group is one of the following PUCCH resource groups:

a PUCCH resource group whose group identifier meets a fourth preset condition;

a PUCCH resource group in correspondence with a second specified TRP; and

PUCCH resource group in correspondence with a second specified object, wherein the specified object comprises one of a specified resource, a specified channel, and a specified signal, and a value of a third preset parameter of the second specified object meets a fifth preset condition,

wherein the specified PUCCH resource group is a PUCCH resource group whose group identifier meets the fourth preset condition; wherein the fourth preset condition comprises at least one of a group identifier being the largest, a group identifier being the smallest, and a group identifier being a preset value; or

the specified PUCCH resource group is a PUCCH resource group in correspondence with the second specified TRP, wherein when the first preset condition comprises that first DCI has been received from one TRP, the second

specified TRP is a TRP that sends the first DCI; when the first preset condition comprises that a plurality of pieces of DCI have been received from a plurality of TRPs, the second specified TRP is a TRP with a second preset identifier in the plurality of TRPs; when the first preset condition comprises that a time point for sending a PUCCH by using the target PUCCH resource has arrived and that the target PUCCH resource is a periodic resource or a semi-persistent resource, the second specified TRP is a TRP corresponding to a most recent transmission from/to the terminal device, and the most recent transmission comprises one of any most recent transmission, any most recent downlink transmission, any most recent uplink transmission, a most recent specified channel transmission, and a most recent specified signal transmission; or

the specified PUCCH resource group is a PUCCH resource group in correspondence with the second specified object, wherein when the first preset condition comprises that first DCI has been received from one TRP, the second specified object is a control resource set group in which the first DCI is located; when the first preset condition comprises that a plurality of pieces of DCI have been received from a plurality of TRPs, the second specified object is a control resource set group whose group identifier meets the fifth preset condition in a plurality of control resource set groups in which the plurality of pieces of DCI are located; and when the first preset condition comprises that a time point for sending a PUCCH by using the target PUCCH resource has arrived and that the target PUCCH resource is a periodic resource or a semi-persistent resource, the second specified object is a control resource set group corresponding to a most recent transmission from/to the terminal device, and the most recent transmission comprises one of any most recent transmission, any most recent downlink transmission, any most recent uplink transmission, a most recent specified channel transmission, and a most recent specified signal transmission.

9. The method according to claim 5, wherein the selecting, by the terminal device, one activation parameter from the at least one activation parameter as the target parameter used for sending a PUCCH on the target PUCCH resource comprises:

based on third information from the network device, selecting, by the terminal device, one activation parameter from the at least one activation

parameter as the target parameter used for sending a PUCCH on the target PUCCH resource.

10. The method according to claim 4, wherein

the first preset condition comprises that a time point for sending a PUCCH by
5 using the target PUCCH resource has arrived and that the target PUCCH resource is a periodic resource or a semi-persistent resource, and the determining, by the terminal device, a target parameter used for sending a PUCCH on a target PUCCH resource comprises:

based on a periodicity of the target PUCCH resource, selecting, by the
10 terminal device, one of the at least one activation parameter in turn as the target parameter used for sending a PUCCH on the target PUCCH resource.

11. The method according to claim 4, wherein the sending, by the terminal device, a PUCCH on the target PUCCH resource by using the target parameter comprises:

15 sending, by the terminal device, the PUCCH to a target TRP on the target PUCCH resource by using the target parameter;

wherein

when the first preset condition comprises that first DCI has been received from one TRP, the target TRP is a TRP that sends the first DCI;

20 when the first preset condition comprises that a plurality of pieces of DCI have been received from a plurality of TRPs, the target TRP is one TRP corresponding to the target parameter in the plurality of TRPs;

when the first preset condition comprises that a time point for sending a PUCCH by using the target PUCCH resource has arrived and that the target
25 PUCCH resource is a periodic resource or a semi-persistent resource, the target TRP is a TRP corresponding to a most recent transmission, and the most recent transmission comprises one of any most recent transmission, any most recent downlink transmission, any most recent uplink transmission, a most recent specified channel transmission, and a most recent specified signal transmission.

30 12. A method for information configuration, comprising:

sending, by a network device, first information to a terminal device; characterized in that

the first information is used for the terminal device to determine an activation parameter of at least one PUCCH resource group to which a target PUCCH

resource belongs, wherein different PUCCH resource groups to which the target PUCCH resource belongs have different activation parameters, and each of the at least one activation parameter comprises at least one of activated spatial relation information and an activated power control parameter.

5 13. A terminal device, comprising:

 a first determining module, configured to: in a case that a first preset condition is met, determine a target parameter used for sending a PUCCH on a target PUCCH resource, wherein the target PUCCH resource has at least one activation parameter, the target parameter is one of the at least one activation parameter, and each of the at least one activation parameter comprises at least one of activated spatial relation information and an activated power control parameter;

 a PUCCH sending module, configured to send a PUCCH on the target PUCCH resource by using the target parameter; and

10 a second determining module, configured to: determine the at least one activation parameter of the target PUCCH resource based on first information from a network device; characterized in that

 the first information is used for determining an activation parameter of at least one PUCCH resource group to which the target PUCCH resource belongs, wherein different PUCCH resource groups to which the target PUCCH resource belongs have different activation parameters.

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 14. The terminal device according to claim 13, further comprising:

 a first receiving module, configured to: receive second information from the network device, wherein the second information is used for configuring at least one parameter for the target PUCCH resource or the at least one PUCCH resource group, and the at least one parameter comprises the at least one activation parameter.

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 15. The terminal device according to claim 13, wherein

 the first information comprises one of a first MAC CE and first RRC information.

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 16. The terminal device according to any one of claims 13 to 15, wherein

 the first preset condition comprises one of the following conditions:

 first DCI has been received by the terminal device from one TRP, wherein the first DCI is used to indicate that a PUCCH is to be transmitted on the target PUCCH resource;

a plurality of pieces of DCI have been received by the terminal device from a plurality of TRPs, wherein the plurality of pieces of DCI are used to indicate that a PUCCH is to be transmitted on the target PUCCH resource; and

5 a time point for sending a PUCCH by using the target PUCCH resource has arrived, wherein the target PUCCH resource is a periodic resource or a semi-persistent resource.

17. The terminal device according to claim 16, wherein the first determining module is further configured to:

10 select one activation parameter from the at least one activation parameter as the target parameter used for sending a PUCCH on the target PUCCH resource.

18. A network device, comprising:

a first sending module, configured to send first information to a terminal device; characterized in that

15 the first information is used for the terminal device to determine an activation parameter of at least one PUCCH resource group to which a target PUCCH resource belongs, wherein different PUCCH resource groups to which the target PUCCH resource belongs have different activation parameters, and each of the at least one activation parameter comprises at least one of activated spatial relation information and an activated power control parameter.