

WHAT IS CLAIMED IS:

1. A method for indicating spatial relation information, applied to a base station, the method comprising:

sending, by the base station, indication information for Physical Uplink Control Channel (PUCCH) spatial relation information to a terminal, wherein the spatial relation information indicated by the indication information is applied to ~~at least two PUCCH resources of the terminal or a~~ PUCCH resource group of the terminal, and the PUCCH resource group comprises at least ~~one~~ two PUCCH resources of the terminal.

~~2. The method of claim 1, wherein,~~

characterized in that sending the indication information for the PUCCH spatial relation information to the terminal comprises one of the following:

sending first indication information for the PUCCH spatial relation information to the terminal, wherein the first indication information carries an identifier of a PUCCH resource in the PUCCH resource group and spatial relation information for activation/deactivation, and the spatial relation information for activation/deactivation is used for all PUCCH resources in the PUCCH resource group configured for the terminal;

~~3. The method of claim 1, wherein sending the indication information for the PUCCH spatial relation information to the terminal comprises:~~

sending second indication information for the PUCCH spatial relation information to the terminal, wherein the second indication information carries spatial relation information for activation/deactivation while does not carry any PUCCH resource identifier, and the spatial relation information for activation/deactivation is used for all PUCCH resources in the PUCCH resource group configured for the terminal; or:

~~4. The method of claim 1, wherein sending the indication information for the PUCCH spatial relation information to the terminal comprises:~~

sending third indication information for the PUCCH spatial relation information to the

terminal, wherein the third indication information carries a group identifier of a first PUCCH resource group and spatial relation information for activation/deactivation, and the spatial relation information for activation/deactivation is used for all PUCCH resources in the first PUCCH resource group.

52. The method of claim 41, further comprising: when sending the indication information for the PUCCH spatial relation information to the terminal comprises sending the third indication information for the PUCCH spatial relation information to the terminal, before sending the third indication information,

sending PUCCH resource group configuration information to the terminal, wherein the PUCCH resource group configuration information is used for configuring the PUCCH resources in the PUCCH resource group.

63. A method for indicating spatial relation information, applied to a terminal, the method comprising:

receiving, by the terminal, indication information for Physical Uplink Control Channel (PUCCH) spatial relation information from a base station, wherein the spatial relation information indicated by the indication information is applied to ~~at least two PUCCH resources of the terminal or a~~ PUCCH resource group of the terminal, and the PUCCH resource group comprises at least two PUCCH resources of the terminal~~at least one PUCCH resource~~; and

determining, by the terminal, the spatial relation information for ~~the at least two PUCCH resources of~~ the PUCCH resource group of the terminal according to the spatial relation information indicated by the indication information,

characterized in that one of the following applies:

the indication information carries an identifier of a PUCCH resource in the PUCCH resource group and spatial relation information for activation/deactivation; and determining the spatial relation information for the PUCCH resource group of the terminal according to the spatial relation information indicated by the indication information comprises: determining, according to the spatial relation information for activation/deactivation carried

in the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal;

the indication information carries spatial relation information for activation/deactivation while does not carry any PUCCH resource identifier; and determining the spatial relation information for the PUCCH resource group of the terminal according to the spatial relation information indicated by the indication information comprises: determining, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal; or

the indication information carries a group identifier of a first PUCCH resource group and spatial relation information for activation/deactivation, and determining the spatial relation information for the PUCCH resource group of the terminal according to the spatial relation information indicated by the indication information comprises: determining, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the first PUCCH resource group.

74. The method of claim 63, further comprising:

performing PUCCH transmission according to the spatial relation information for ~~the~~ at least two PUCCH resources ~~or the~~ PUCCH resource group of the terminal.

~~8. The method of claim 6, wherein the indication information carries an identifier of a PUCCH resource in the PUCCH resource group and spatial relation information for activation/deactivation; and~~

~~determining the spatial relation information for the at least two PUCCH resources or the PUCCH resource group of the terminal according to the spatial relation information indicated by the indication information comprises:~~

~~determining, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal.~~

~~9. The method of claim 6, wherein the indication information carries spatial relation information for activation/deactivation while does not carry any PUCCH resource identifier; and~~

~~determining the spatial relation information for the at least two PUCCH resources or the PUCCH resource group of the terminal according to the spatial relation information indicated by the indication information comprises:~~

~~determining, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal.~~

~~10. The method of claim 6, wherein the indication information carries a group identifier of a first PUCCH resource group and spatial relation information for activation/deactivation, and~~

~~determining the spatial relation information for the at least two PUCCH resources or the PUCCH resource group of the terminal according to the spatial relation information indicated by the indication information comprises:~~

~~determining, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the first PUCCH resource group.~~

~~115. The method of claim 103, further comprising: when the indication information carries the group identifier of the first PUCCH resource group and the spatial relation information for activation/deactivation, before receiving the indication information,~~

~~receiving PUCCH resource group configuration information from the base station, wherein the PUCCH resource group configuration information is used for configuring the PUCCH resource group of the terminal and the PUCCH resources in the PUCCH resource group.~~

~~126. A base station, comprising:~~

a processor; and

a transceiver;

wherein the transceiver is configured to send indication information for Physical Uplink Control Channel (PUCCH) spatial relation information to a terminal, wherein the spatial relation information indicated by the indication information is applied to ~~at least two PUCCH resources of the terminal or a~~ PUCCH resource group of the terminal, and the PUCCH resource group comprises at least ~~one two~~ PUCCH resources of the terminal, characterized in that

~~13. The base station of claim 12, wherein the transceiver is further configured to~~
perform one of the following:

send first indication information for the PUCCH spatial relation information to the terminal, wherein the first indication information carries an identifier of a PUCCH resource in the PUCCH resource group and spatial relation information for activation/deactivation, and the spatial relation information for activation/deactivation is used for all PUCCH resources in the PUCCH resource group configured for the terminal-

~~14. The base station of claim 12, wherein the transceiver is further configured to;~~

send second indication information for the PUCCH spatial relation information to the terminal, wherein the second indication information carries spatial relation information for activation/deactivation while does not carry any PUCCH resource identifier, and the spatial relation information for activation/deactivation is used for all PUCCH resources in the PUCCH resource group configured for the terminal-

~~15. The base station of claim 12, wherein the transceiver is further configured to; or~~

send third indication information for the PUCCH spatial relation information to the terminal, wherein the third indication information carries a group identifier of a first PUCCH resource group and spatial relation information for activation/deactivation, and the spatial relation information for activation/deactivation is used for all PUCCH resources in the first PUCCH resource group.

167. A terminal, comprising:

a processor; and

a transceiver;

wherein the transceiver is configured to receive indication information for Physical Uplink Control Channel (PUCCH) spatial relation information from a base station, wherein the spatial relation information indicated by the indication information is applied to ~~at least two PUCCH resources of the terminal or~~ a PUCCH resource group of the terminal, and the PUCCH resource group comprises at least ~~one~~ two PUCCH resources of the terminal; and

the processor is configured to determine, according to the spatial relation information indicated by the indication information, the spatial relation information for ~~the at least two PUCCH resources or~~ the PUCCH resource group of the terminal,

characterized in that one of the following applies:

the indication information carries an identifier of a PUCCH resource in the PUCCH resource group and spatial relation information for activation/deactivation; and the processor is further configured to determine, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal;

the indication information carries spatial relation information for activation/deactivation while does not carry any PUCCH resource identifier; and the processor is further configured to determine, according to the spatial relation information for activation/deactivation indicated by the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal; or

the indication information carries a group identifier of a first PUCCH resource group and spatial relation information for activation/deactivation, and the processor is further configured to determine, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the first PUCCH resource group.

178. The terminal of claim 167, wherein the processor is further configured to perform PUCCH transmission according to the spatial relation information for ~~the at least~~

~~two PUCCH resources or the PUCCH resource group of the terminal.~~

~~18. The terminal of claim 16, wherein the indication information carries an identifier of a PUCCH resource in the PUCCH resource group and spatial relation information for activation/deactivation; and~~

~~the processor is further configured to determine, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal.~~

~~19. The terminal of claim 16, wherein the indication information carries spatial relation information for activation/deactivation while does not carry any PUCCH resource identifier; and~~

~~the processor is further configured to determine, according to the spatial relation information for activation/deactivation indicated by the indication information, spatial relation information for all PUCCH resources in the PUCCH resource group configured for the terminal.~~

~~20. The terminal of claim 16, wherein the indication information carries a group identifier of a first PUCCH resource group and spatial relation information for activation/deactivation, and~~

~~the processor is further configured to determine, according to the spatial relation information for activation/deactivation carried in the indication information, spatial relation information for all PUCCH resources in the first PUCCH resource group.~~

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