WHAT IS CLAIMED IS:

1. A physical downlink control channel (PDCCH) transmission method, comprising:

determining a control resource set (CORESET) priority rule, wherein the CORESET priority rule comprises at least one of the followings: a CORESET priority corresponding to a Common Search Space (CSS) set pair is higher than a CORESET priority corresponding to a CSS set that does not constitute any CSS set pair; or a CORESET priority corresponding to a UE-specific Search Space (USS) set pair is higher than a CORESET priority corresponding to a USS set that does not constitute any USS set pair;

selecting at least one CORESET from a plurality of CORESETs based on the CORESET priority rule; and

performing PDCCH transmission at an overlapped PDCCH monitor occasion based on the at least one CORESET;

wherein a CSS set pair comprises two linked CSS sets;

wherein a USS set pair comprises two linked USS sets.

2. The method of claim 1, wherein determining the CORESET priority rule, comprises at least one of:

determining the CORESET priority rule based on a serving cell index corresponding to each CORESET;

determining the CORESET priority rule based on a Common Search Space (CSS) set index or a CSS set pair index corresponding to each CORESET;

determining the CORESET priority rule based on a UE-specific Search Space (USS) set index or a USS set pair index corresponding to each CORESET; or

determining the CORESET priority rule based on a number of Transmission Configuration Indication (TCI) states corresponding to each CORESET.

3. The method of claim 1, wherein the CORESET priority rule further comprises:

in all CSS sets not constituting any CSS set pair and all CSS set pairs, the smaller a CSS set index or a CSS set pair index, the higher a corresponding CORESET priority; or

in all CSS sets that do not constitute any CSS set pair, the smaller a CSS set index, the higher a corresponding CORESET priority.

4. The method of claim 3, wherein a CSS set pair index of the CSS set pair is a smaller index of CSS set indexes of the two linked CSS sets, or a CSS set pair index of the CSS set pair is an

index value for the CSS set pair configured by a network device.

5. The method of claim 1, wherein the CORESET priority rule further comprises:

in all USS sets not constituting any USS set pair and all USS set pairs, the smaller a USS set index or a USS set pair index, the higher a corresponding CORESET priority; or

in all USS sets that do not constitute any USS set pair, the smaller a USS set index, the higher a corresponding CORESET priority.

6. The method of claim 5, wherein a USS set pair index of the USS set pair is a smaller index of USS set indexes of the two linked USS sets, or a USS set pair index of the USS set pair is an index value for the USS set pair configured by a network device.

7. The method of any one of claims 1-6, wherein selecting the at least one CORESET from the plurality of CORESETs based on the CORESET priority rule, comprises:

determining whether one or more CORESETs each containing a CSS set exist in the plurality of CORESETs; and

selecting the at least one CORESET from the one or more CORESETs each containing the CSS set based on the CORESET priority rule, wherein the one or more CORESETs each containing the CSS set exist in the plurality of CORESETs;

wherein the CORESET priority rule comprises the CORESET priority corresponding to the CSS set pair is higher than the CORESET priority corresponding to the CSS set that does not constitute any CSS set pair.

8. The method of any one of claims 1-6, wherein selecting the at least one CORESET from the plurality of CORESETs based on the CORESET priority rule, further comprises:

determining whether one or more CORESETs each containing a USS set exist in the plurality of CORESETs; and

selecting the at least one CORESET from the one or more CORESETs each containing the USS set based on the CORESET priority rule, wherein no CORESET containing the CSS set exists in the plurality of CORESETs, and the one or more CORESETs each containing the USS set exist in the plurality of CORESETs;

wherein the CORESET priority rule comprises the CORESET priority corresponding to the USS set pair is higher than the CORESET priority corresponding to the USS set that does not constitute any USS set pair.

9. The method of claim 7, wherein a terminal participating in the PDCCH transmission is

configured with a plurality of serving cells;

selecting the at least one CORESET from the one or more CORESETs each containing the CSS set based on the CORESET priority rule, comprises:

determining one or more CORESETs corresponding to all CSS set pairs from the one or more CORESETs each containing the CSS set;

selecting a serving cell with a smallest serving cell index from serving cells each having a CSS set pair; and

selecting the at least one CORESET from one or more CORESETs corresponding to the CSS set pair corresponding to the serving cell with the smallest serving cell index based on the CORESET priority rule.

10. The method of claim 7, wherein a terminal participating in the PDCCH transmission is configured with a plurality of serving cells;

selecting the at least one CORESET from the one or more CORESETs each containing the CSS set based on the CORESET priority rule, comprises:

selecting a serving cell with a smallest serving cell index from serving cells each having a CSS set; and

selecting the at least one CORESET from one or more CORESETs corresponding to the CSS set or a CSS set pair corresponding to the serving cell with the smallest serving cell index based on the CORESET priority rule.

11. The method of claim 8, wherein a terminal participating in the PDCCH transmission is configured with a plurality of serving cells;

selecting the at least one CORESET from the one or more CORESETs each containing the USS set based on the CORESET priority rulev, comprises:

determining one or more CORESETs corresponding to all USS set pairs from the one or more CORESETs each containing the USS set;

selecting a serving cell with a smallest serving cell index from serving cells each having a USS set pair; and

selecting the at least one CORESET from one or more CORESETs corresponding to the USS set pair corresponding to the serving cell with the smallest serving cell index based on the CORESET priority rule.

12. The method of claim 8, wherein a terminal participating in the PDCCH transmission is

configured with a plurality of serving cells;

selecting the at least one CORESET from the one or more CORESETs each containing the USS set based on the CORESET priority rule, comprises:

selecting a serving cell with a smallest serving cell index from serving cells each having a USS set; and

selecting the at least one CORESET from one or more CORESETs corresponding to the USS set or a USS set pair corresponding to the serving cell with the smallest serving cell index based on the CORESET priority rule.

13. The method of any one of claims 1-12, wherein the method is executed by a terminal, and performing the PDCCH transmission at the overlapped PDCCH monitor occasion based on the at least one CORESET, comprises:

monitoring, at the overlapped PDCCH monitor occasion, a PDCCH in the at least one CORESET, and the PDCCH in another CORESET having at least one same Quasi Co Location (QCL) Type D with any CORESET in the at least one CORESET; or

determining at least one QCL Type D of the at least one CORESET, and monitoring, at the overlapped PDCCH monitor occasion, a PDCCH in a CORESET having a same QCL Type D as any one of the at least one QCL Type D.

14. The method of any one of claims 1-13, wherein,

the at least one CORESET comprises one CORESET, and the one CORESET is configured with a plurality of TCI states; or

the at least one CORESET comprises a plurality of CORESETs, and each CORESET in the plurality of CORESETs is configured with one TCI state; or

the at least one CORESET comprises a plurality of CORESETs, and each CORESET in a portion of the plurality of CORESETs is configured with one TCI state, and each CORESET in another portion of the plurality of CORESETs is configured with a plurality of TCI states.

15. The method of any one of claims 1-14, wherein the method is executed by a terminal, and the method further comprises:

receiving a radio resource control signaling sent by a network device, the radio resource control signaling comprising the plurality of CORESETs and configuration information of search space sets; and

determining the overlapped PDCCH monitor occasion based on the configuration

information.

16. A physical downlink control channel (PDCCH) transmission apparatus, comprising:

a processing module, configured to determine a control resource set (CORESET) priority rule, and select at least one CORESET from a plurality of CORESETs based on the CORESET priority rule, wherein the CORESET priority rule comprises at least one of the followings: a CORESET priority corresponding to a Common Search Space (CSS) set pair is higher than a CORESET priority corresponding to a CSS set that does not constitute any CSS set pair; or a CORESET priority corresponding to a UE-specific Search Space (USS) set pair is higher than a CORESET priority corresponding to a USS set that does not constitute any USS set pair; and

a transceiver module, configured to perform PDCCH transmission at an overlapped PDCCH monitor occasion based on the at least one CORESET;

wherein a CSS set pair comprises two linked CSS sets;

wherein a USS set pair comprises two linked USS sets.

17. A communication device, comprising:

a processor;

a memory for storing instructions executable by the processor; wherein

the processor is configured to load and execute the executable instructions to implement the physical downlink control channel (PDCCH) transmission method of any one of claims 1-15.

18. A computer-readable storage medium for storing instructions, wherein when the instructions are executed by a processor, the physical downlink control channel (PDCCH) transmission method of any one of claims 1-15 is implemented.