CLAIMS

What is claimed is:

1. A method for beam failure recovery, comprising:

obtaining, by a terminal, N pieces of configuration information, wherein the N pieces of configuration information are applicable to different transmission and reception points TRPs, the configuration information comprises a parameter for beam failure recovery, and N is an integer greater than 1; and

in a case that a beam failure event occurring on at least one TRP is determined, transmitting, by the terminal, a beam failure recovery request based on the configuration information;

wherein, in a case that a beam failure event occurs on M TRPs, and first resources, used for transmitting a beam failure recovery request by the terminal, in configuration information of the M TRPs are the same, wherein M is an integer greater than 1,

the transmitting a beam failure recovery request based on the configuration information comprises:

transmitting a beam failure recovery request to a higher-priority TRP in the M TRPs with the beam failure event by using the first resource in the configuration information of the M TRPs.

2. The method according to claim 1, wherein different TRPs are identified by at least one of the following manners:

different control resource sets;

different control resource set groups;

different explicitly defined TRPs;

different transmission configuration indicator states;

different transmission configuration indicator state lists;

different transmission configuration indicator state pools;

different quasi co-location QCL;

different quasi co-location QCL groups;

different spatial relations;

different spatial relation groups;

different physical downlink control channel PDCCH scrambling identifiers;

different PDCCH scrambling identifier groups;

different physical downlink shared channel PDSCH scrambling identifiers;

different PDSCH scrambling identifier groups;

different PDCCH-Config information elements; and

different PDSCH-Config information elements.

3. The method according to claim 1, wherein the configuration information comprises at least one of the following:

a beam failure detection reference signal;

a candidate beam reference signal;

a first resource used for transmitting a beam failure recovery request by the terminal; and

a second resource used for transmitting a beam failure recovery request response by a network-side device.

4. The method according to claim 3, wherein configuration information of different TRPs satisfies at least one of the following conditions:

that beam failure detection reference signals are different;

that candidate beam reference signals are different;

that first resources used for transmitting a beam failure recovery request by the terminal are different;

that first resources used for transmitting a beam failure recovery request by the terminal are the same;

that second resources used for transmitting a beam failure recovery request response by the network-side device are different; and

that second resources used for transmitting a beam failure recovery request response by the network-side device are the same.

5. The method according to claim 1, wherein the obtaining N pieces of configuration information comprises:

obtaining the N pieces of configuration information that are configured by a network-side device in one bandwidth part BWP.

6. The method according to claim 1, wherein in a case that a beam failure event occurs on a first TRP, the transmitting a beam failure recovery request based on the configuration information comprises:

transmitting a beam failure recovery request to the first TRP based on a first resource, used for transmitting a beam failure recovery request by the terminal, in configuration information corresponding to the first TRP;

or

transmitting a beam failure recovery request to a second TRP based on a first resource, used for transmitting a beam failure recovery request by the terminal, in configuration information

corresponding to the second TRP other than the first TRP, wherein the beam failure recovery request is forwarded to the first TRP by the second TRP.

7. The method according to claim 1, wherein in a case that a beam failure event occurs on M TRPs, and first resources, used for transmitting a beam failure recovery request by the terminal, in configuration information of the M TRPs are different, wherein M is an integer greater than 1,

the transmitting a beam failure recovery request based on the configuration information comprises:

transmitting a beam failure recovery request to each of the M TRPs with the beam failure event by using different first resources in the configuration information of the M TRPs; ~~or~~

~~in a case that a beam failure event occurs on M TRPs, and first resources, used for transmitting a beam failure recovery request by the terminal, in configuration information of the M TRPs are the same, wherein M is an integer greater than 1,~~

~~the transmitting a beam failure recovery request based on the configuration information comprises:~~

~~transmitting a beam failure recovery request to a higher-priority TRP in the M TRPs with the beam failure event by using the first resource in the configuration information of the M TRPs;~~

and/or

wherein in a case that a beam failure event occurs on M TRPs, and second resources, used for transmitting a beam failure recovery request response by a network-side device, in configuration information of the M TRPs are the same, wherein M is an integer greater than 1, the method further comprises:

receiving a beam failure recovery request response that is transmitted by a higher-priority TRP in the M TRPs with the beam failure event by using the second resource in the configuration information.

8. The method according to claim 7, wherein the second resource, used for transmitting a beam failure recovery request response by the network-side device, in the configuration information comprises:

a control resource set for beam failure recovery CORESET-BFR.

9. The method according to claim 7, wherein a priority of the TRP is determined based on at least one of the following information:

index information of a control resource set;

index information of a control resource set group;

identification information of an explicitly defined TRP;

information about a transmission configuration indicator state;

information about a transmission configuration indicator state list;

information about a transmission configuration indicator state pool;

quasi-co-location QCL information;

quasi-co-location QCL group information;

spatial relation information;

spatial relation group information;

PDCCH scrambling identifier information;

PDCCH scrambling identifier group information;

PDSCH scrambling identifier information;

PDSCH scrambling identifier group information;

information about a PDCCH-Config information element; and

information about a PDSCH-Config information element.

10. The method according to claim 1, further comprising:

if a preset condition is satisfied, transmitting, by the terminal by using spatial relation information of a PUCCH associated with a TRP with a beam failure event, the PUCCH within a preset period of time.

11. The method according to claim 10, wherein the preset condition is at least one of the following:

the terminal receives downlink information that is transmitted by the TRP with the beam failure event;

the terminal transmits a beam failure recovery request to the TRP with the beam failure event; and

the terminal transmits a beam failure recovery request to the TRP with the beam failure event, and does not receive, within a first preset duration, downlink information transmitted by the TRP with the beam failure event; and/or

wherein the preset period of time starts:

when the preset condition is satisfied; or

when a second preset duration elapses after the preset condition is satisfied; and/or

wherein the spatial relation information of the PUCCH associated with the TRP with the beam failure event is determined in one of the following manners:

using spatial relation information of an uplink channel for transmitting a beam failure recovery request in a preset cell;

using spatial relation information or QCL information of a preset channel in the preset cell;

using spatial relation information or QCL information of a preset reference signal in the preset cell;

using spatial relation information or QCL information of a preset channel in a primary cell; and

using spatial relation information or QCL information of a preset reference signal in the primary cell.

12. The method according to claim 1, further comprising:

skipping transmitting a PUCCH in a case that after transmitting a beam failure recovery request to a TRP with a beam failure event, the terminal does not receive, within a third preset duration, downlink information that is transmitted by the TRP with the beam failure event.

13. The method according to claim 11 or 12, wherein the downlink information comprises at least one of the following:

a PDCCH on a control resource set for beam failure recovery CORESET-BFR associated with the TRP with the beam failure event;

downlink control information DCI;

a random access response RAR;

a release command or deactivation command used for releasing a cell with a beam failure;

information triggering beam measurement and/or beam reporting for the TRP with the beam failure event;

information triggering channel state information CSI measurement and/or CSI reporting for the TRP with the beam failure event; and

acknowledgement ACK or negative acknowledgement NACK corresponding to scheduling information of the TRP with the beam failure event.

14. A method for beam failure handling, comprising:

configuring, by a network-side device, N pieces of configuration information for a terminal, wherein the N pieces of configuration information are applicable to different transmission and reception points TRPs, the configuration information comprises a parameter for beam failure recovery, and N is an integer greater than 1;

wherein, in a case that a beam failure event occurs on M TRPs, and first resources, used for transmitting a beam failure recovery request by the terminal, in configuration information of the M TRPs are different, wherein M is an integer greater than 1, the method further comprises:

receiving a beam failure recovery request that is transmitted by the terminal to a higher-priority TRP in the M TRPs with the beam failure event by using the first resource in the configuration information of the M TRPs.

15. The method according to claim 14, wherein the configuration information comprises at least one of the following:

a beam failure detection reference signal;

a candidate beam reference signal;

a first resource used for transmitting a beam failure recovery request by the terminal; and

a second resource used for transmitting a beam failure recovery request response by a network-side device.

16. The method according to claim 15, wherein configuration information of different TRPs satisfies at least one of the following conditions:

that beam failure detection reference signals are different;

that candidate beam reference signals are different;

that first resources used for transmitting a beam failure recovery request by the terminal are different;

that first resources used for transmitting a beam failure recovery request by the terminal are the same;

that second resources used for transmitting a beam failure recovery request response by the network-side device are different; and

that second resources used for transmitting a beam failure recovery request response by the network-side device are the same.

17. A terminal, comprising:

an obtaining module, configured to obtain N pieces of configuration information, wherein the N pieces of configuration information are applicable to different transmission and reception points TRPs, the configuration information comprises a parameter for beam failure recovery, and N is an integer greater than 1; and

a request transmitting module, configured to: in a case that a beam failure event occurring on at least one TRP is determined, transmit a beam failure recovery request based on the configuration information;

wherein the request transmitting module comprises:

a second request transmitting submodule, configured to: in a case that a beam failure event occurs on M TRPs, and first resources, used for transmitting a beam failure recovery request by

the terminal, in configuration information of the M TRPs are the same, transmit a beam failure recovery request to a higher-priority TRP in the M TRPs with the beam failure event by using the first resource in the configuration information of the M TRPs, where M is an integer greater than 1.

18. A terminal, comprising a processor, a memory, and a computer program stored in the memory and capable of running on the processor, wherein when the computer program is executed by the processor, the steps of the method for beam failure recovery according to any one of claims 1 to 13 are implemented.

19. A network-side device, comprising:

a configuration module, configured to configure N pieces of configuration information for a terminal, wherein the N pieces of configuration information are applicable to different transmission and reception points TRPs, the configuration information comprises a parameter for beam failure recovery, and N is an integer greater than 1;

wherein the network-side device further comprises:

a second receiving module, configured to: in a case that a beam failure event occurs on M TRPs, and first resources, used for transmitting a beam failure recovery request by the terminal, in configuration information of the M TRPs are the same, receive a beam failure recovery request that is transmitted by the terminal to a higher-priority TRP in the M TRPs with the beam failure event by using the first resource in the configuration information of the M TRPs, where M is an integer greater than 1.

20. A network-side device, comprising a processor, a memory, and a computer program stored in the memory and capable of running on the processor, wherein when the computer program is executed by the processor, the steps of the method for beam failure handling according to any one of claims 14 to 16 are implemented.