What is claimed is:

1. A wireless communication method of inter-cell mobility, by a user equipment (UE), comprising:

receiving, from a base station, a configuration of a list of candidate cells for inter-cell mobility;

receiving, from the base station, a random access channel (RACH) configuration of each candidate cell in the list of candidate cells; and

receiving, from the base station, a signaling used to indicate the UE to perform a physical random access channel (PRACH) preamble transmission to a candidate cell in the list of candidate cells.

2. The method of claim 1, wherein the signaling is a downlink control information (DCI) signaling and comprises one or more of following information:

an indicator used to indicate the candidate cell in the list of candidate cells, which the UE is indicated to transmit the PRACH preamble to;

an indicator of a synchronization signal/physical broadcast channel (SS/PBCH) of a cell;

an indicator of a random access preamble index;

an indicator of a PRACH mask index; and

an indicator used to indicate whether the PRACH preamble transmission is an initial transmission or a retransmission.

3. The method of claim 2, wherein the DCI signaling is a DCI format 1_0 used for a random access procedure initiated by a physical downlink control channel (PDCCH)-order to the candidate cell in the list of candidate cells.

4. The method of any one of claims 1 to 3, further comprising determining a power-ramping value associated with the PRACH preamble transmission.

5. The method of claim 4, further comprising adjusting a power-ramping counter value based on the power-ramping value.

6. The method of claim 5, further comprising calculating a transmit power of the PRACH preamble transmission, wherein the transmit power is calculated based on the power-ramping counter value.

7. The method of claim 6, further comprising performing the PRACH preamble transmission using the transmit power to the candidate cell in the list of candidate cells.

8. A wireless communication method of inter-cell mobility, by a base station, comprising:

transmitting, to a user equipment (UE), a configuration of a list of candidate cells for inter-cell mobility;

transmitting, to the UE, a random access channel (RACH) configuration of each candidate cell in the list of candidate cells; and

transmitting, to the UE, a signaling used to indicate the UE to perform a physical random access channel (PRACH) preamble transmission to a candidate cell in the list of candidate cells.

9. The method of claim 8, wherein the signaling is a downlink control information (DCI) signaling and comprises one or more of following information:

an indicator used to indicate the candidate cell in the list of candidate cells, which the UE is indicated to transmit the PRACH preamble to;

an indicator of a synchronization signal/physical broadcast channel (SS/PBCH) of a cell;

an indicator of a random access preamble index;

an indicator of a PRACH mask index; and

an indicator used to indicate whether the PRACH preamble transmission is an initial transmission or a retransmission.

10. The method of claim 9, wherein the DCI signaling is a DCI format 1_0 used for a random access procedure initiated by a physical downlink control channel (PDCCH)-order to the candidate cell in the list of candidate cells.

11. The method of any one of claims 8 to 10, wherein the signaling used to indicate the UE to determine a power-ramping value associated with the PRACH preamble transmission.

12. The method of claim 11, wherein the signaling used to indicate the UE to adjust a power-ramping counter value based on the power-ramping value.

13. The method of claim 12, wherein the signaling used to indicate the UE to calculate a transmit power of the PRACH preamble transmission, wherein the transmit power is calculated based on the power-ramping counter value.

14. A user equipment (UE), comprising:

a memory;

a transceiver; and

a processor coupled to the memory and the transceiver;

wherein the UE is configured to perform the method of any one of claims 1 to 7.

15. A base station, comprising:

a memory;

a transceiver; and

a processor coupled to the memory and the transceiver;

wherein the base station is configured to perform the method of any one of claims 8 to 13.