Patent Literature

[0005]

Patent Literature 1: JP 2004-194288A

Patent Literature 2: JP 2009-55228A

Disclosure of Invention

Technical Problem

[0006]

However, technical fields related to IDMA require further performance improvement. Embodiments of the present invention disclose a novel and improved wireless communication device, wireless communication method and program capable of contributing to improvement of wireless communication technology related to IDMA.

Solution to Problem

[0007]

According to a first aspect, there is provided a wireless communication device including: circuitry configured to perform wireless communication using non-orthogonal multiple access with another wireless communication device; control an interleave length in an interleave process for non-orthogonal multiple access, by the other wireless communication device; control whether to perform a wireless communication using the non-orthogonal multiple access, depending on whether a transmission sequence is a retransmitted sequence or not; and control the interleave length depending on a retransmission process type, wherein the non-orthogonal multiple access separating user signals using interleaver.

[0008]

According to a second aspect, there is provided a wireless communication device including: circuitry configured to performs wireless communication using non-orthogonal multiple access with another wireless communication device; and control the other wireless communication device to perform a non-orthogonal multiple access deinterleave process

depending on detecting whether a non-orthogonal multiple access interleave process has controlled an interleave length by the other wireless communication device in response to a retransmission process type received, and detecting whether a transmission sequence is a retransmitted sequence or not, wherein the non-orthogonal multiple access separating user signals using interleaver.

[0009]

According to a third aspect, there is provided a wireless communication method including: performing wireless communication using non-orthogonal multiple access with another wireless communication device; and controlling an interleave length in an interleave process for non-orthogonal multiple access through a processor by the other wireless communication device, wherein the controlling comprises performing a wireless communication using the non-orthogonal multiple access depending on whether a transmission sequence is a retransmitted sequence or not, and controling the interleave length depending on a retransmission process type, wherein the non-orthogonal multiple access separating user signals using interleaver.

[0010]

According to a fourth aspect, there is provided a wireless communication method including: performing wireless communication using non-orthogonal multiple access with another wireless communication device; and controlling a non-orthogonal multiple access deinterleave process depending on detecting whether a non-orthogonal multiple access interleave process has controlled an interleave length by the other wireless communication device in response to a retransmission process type received, and detecting whether a transmission sequence is a retransmitted sequence or not, wherein the non-orthogonal multiple access separating user signals using interleaver.

[0011]

According to a fifth aspect, there is provided a program for causing a computer to function as: a wireless communication device configured to perform wireless communication

using non-orthogonal multiple access with another wireless communication device; control an interleave length in an interleave process for non-orthogonal multiple access by the other wireless communication device; control whether to perform a wireless communication using the non-orthogonal multiple access, depending on whether a transmission sequence is a retransmitted sequence or not; and control the interleave length depending on a retransmission process type, wherein the non-orthogonal multiple access separating user signals using interleaver.

[0012]

According to a sixth aspect, there is provided a program for causing a computer to function as: a wireless communication device configured to perform wireless communication using non-orthogonal multiple access with another wireless communication device; control the other wireless communication device to perform a non-orthogonal multiple access deinterleave process depending on detecting whether a non-orthogonal multiple access interleave process has controlled an interleave length by the other wireless communication device in response to a retransmission process type received, and detecting whether a transmission sequence is a retransmitted sequence or not, wherein the non-orthogonal multiple access separating user signals using interleaver.

Advantageous Effects of Invention

[0013]

According to embodiments of the present invention described above, it is possible to contribute to improvement of wireless communication technology related to IDMA. Note that the effects described above are not necessarily limitative. With or in the place of the above effects, there may be achieved any one of the effects described in this specification or other effects that may be grasped from this specification.

Brief Description of Drawings

CLAIMS

1. A wireless communication device comprising:

circuitry configured to

perform wireless communication using non-orthogonal multiple access with another wireless communication device;

control an interleave length in an interleave process for non-orthogonal multiple access, by the other wireless communication device;

control whether to perform a wireless communication using the non-orthogonal multiple access, depending on whether a transmission sequence is a retransmitted sequence or not; and

control the interleave length depending on a retransmission process type,

wherein the non-orthogonal multiple access separating user signals using interleaver.

2. The wireless communication device according to claim 1, wherein the controller is configured to control the other wireless communication device to perform wireless communication using IDMA when the transmission sequence is a retransmitted sequence.

3. The wireless communication device according to claim 1, wherein the controller is configured to control an interleave pattern in the interleave process by the other wireless communication device.

4. The wireless communication device according to claim 3, wherein the controller is configured to control the interleave pattern depending on the number of retransmissions.

5. The wireless communication device according to claim 3, wherein the controller is configured to control the interleave pattern depending on a retransmission process type.

6. The wireless communication device according to claim 1, wherein the controller is configured to control whether to perform wireless communication using IDMA depending on the number of wireless communication devices that are retransmission targets.

7. The wireless communication device according to claim 1, wherein the controller is configured to control the other wireless communication device to employ chase combining (CC) as a retransmission process type.

8. The wireless communication device according to claim 1, wherein the controller is configured to control the interleave length on the basis of the quantity of radio resources available for transmission by the other wireless communication device and a used modulation scheme.

9. The wireless communication device according to claim 1, wherein the controller is configured to control the other wireless communication device to perform padding when a length of an input sequence to the interleave process does not reach the interleave length.

10. The wireless communication device according to claim 9, wherein the controller is configured to control the other wireless communication device to perform padding on the input sequence to the interleave process.

11. The wireless communication device according to claim 9, wherein the controller is configured to control the other wireless communication device to perform padding on an output sequence of the interleave process.

12. The wireless communication device according to claim 1, wherein the other wireless communication device is configured to perform the interleave process having a sequence (codeword) obtained by connecting one or more error correction code sequences (code blocks) as a target.

13. A wireless communication device comprising:

circuitry configured to

performs wireless communication using non-orthogonal multiple access with another wireless communication device; and

control the other wireless communication device to perform a non-orthogonal multiple access deinterleave process depending on detecting whether a non-orthogonal multiple access interleave process has controlled an interleave length by the other wireless

communication device in response to a retransmission process type received, and detecting whether a transmission sequence is a retransmitted sequence or not,

wherein the non-orthogonal multiple access separating user signals using interleaver.

14. A wireless communication method comprising:

performing wireless communication using non-orthogonal multiple access with another wireless communication device; and

controlling an interleave length in an interleave process for non-orthogonal multiple access through a processor by the other wireless communication device,

wherein the controlling comprises performing a wireless communication using the non-orthogonal multiple access depending on whether a transmission sequence is a retransmitted sequence or not, and controling the interleave length depending on a retransmission process type,

wherein the non-orthogonal multiple access separating user signals using interleaver.

15. The wireless communication method according to claim 14, comprising

controlling wireless communication using IDMA to be performed when a transmission sequence is a retransmitted sequence.

16. A wireless communication method comprising:

performing wireless communication using non-orthogonal multiple access with another wireless communication device; and

controlling a non-orthogonal multiple access deinterleave process depending on detecting whether a non-orthogonal multiple access interleave process has controlled an interleave length by the other wireless communication device in response to a retransmission process type received, and detecting whether a transmission sequence is a retransmitted sequence or not,

wherein the non-orthogonal multiple access separating user signals using interleaver.

17. A program for causing a computer to function as:

a wireless communication device configured to

perform wireless communication using non-orthogonal multiple access with another wireless communication device;

control an interleave length in an interleave process for non-orthogonal multiple access by the other wireless communication device;

control whether to perform a wireless communication using the non-orthogonal multiple access, depending on whether a transmission sequence is a retransmitted sequence or not; and

control the interleave length depending on a retransmission process type,

wherein the non-orthogonal multiple access separating user signals using interleaver.

18. A program for causing a computer to function as:

a wireless communication device configured to

perform wireless communication using non-orthogonal multiple access with another wireless communication device;

control the other wireless communication device to perform a non-orthogonal multiple access deinterleave process depending on detecting whether a non-orthogonal multiple access interleave process has controlled an interleave length by the other wireless communication device in response to a retransmission process type received, and detecting whether a transmission sequence is a retransmitted sequence or not,

wherein the non-orthogonal multiple access separating user signals using interleaver.