

CLAIMS:

1. A wireless power receiver comprising:
 - a pair of antenna modules configured to receive wireless power;
 - a switching module configured to connect the pair of antenna modules to a Direct Current (DC) combining circuit or a Radio Frequency (RF) combining circuit;
 - a detector module configured to receive DC power P_{Rx} from the DC combining circuit or the RF combining circuit, wherein the detector module is configured to trigger the switching module to connect the pair of antenna modules to the DC combining circuit when the received power P_{Rx} exceeds a threshold power $P_{Threshold}$, and the detector module is configured to trigger the switching module to connect the pair of antenna modules to the RF combining circuit when the received power P_{Rx} is less than the threshold power $P_{Threshold}$.
2. The wireless power receiver according to claim 1 wherein the DC combining circuit comprises:
 - a first and a second DC combining rectifier, whereby the first DC combining rectifier is configured to receive the wireless power from one of the antenna modules and the second DC combining rectifier is configured to receive the wireless power from another one of the antenna modules; and
 - whereby the first and second DC combining rectifiers are configured to convert the wireless power from the pair of antenna modules to DC power P_{Rx} and to provide the DC power P_{Rx} , to the detector module.
3. The wireless power receiver according to claim 1, wherein the RF combining circuit comprises:
 - a first and a second beam-forming module, whereby the first beam-forming module is configured to receive the wireless power from the one of the antenna modules and the second beam-forming module is configured to receive the wireless power from the another one of the antenna modules; and
 - a RF combining rectifier configured to convert the beam-formed wireless power from the first and second beam-forming modules to DC power P_{Rx} and to provide the DC power P_{Rx} , to the detector module.

4. The wireless power receiver according to claim 3 whereby the first and second beam-forming modules are configured to optimize the wireless power received from the pair of antenna modules.
5. The wireless power receiver according to claim 4, wherein the first and second beam-forming modules each comprise a phase-shifter controllable by the detector module.
6. The wireless power receiver according to claim 1 whereby the one of the antenna modules comprises a pair of antennas and the another one of the antenna modules comprises another pair of antennas.
7. The wireless power receiver according to claim 1 wherein the switching module comprises a plurality of RF switches.
8. The wireless power receiver according to claim 3 whereby the one of the antenna modules comprises a pair of antennas and the another one of the antenna modules comprises another pair of antennas, and wherein the first and second beam-forming modules comprise a plurality of phase-shifters controllable by the detector module, whereby each phase-shifter is configured to transfer wireless power from an antenna to the RF combining rectifier.
9. The wireless power receiver according to claim 1 whereby the one of the antenna modules comprises a pair of antennas and the another one of the antenna modules comprises another pair of antennas; and
 wherein the DC combining circuit comprises:
 a first and a second beam-forming module, whereby the first beam-forming module is configured to receive the wireless power from the pair of antennas and the second beam-forming module is configured to receive the wireless power from the another pair of antennas;
 a first and a second DC combining rectifier, whereby the first DC combining rectifier is configured to receive the wireless power from the pair of antennas and the second DC combining rectifier is configured to receive the wireless power from the another pair of antennas; and
 whereby the first and second DC combining rectifiers are configured to convert the wireless power from the pair of antennas and the another pair of antennas to DC power P_{Rx} and to provide the DC power P_{Rx} to the detector module.

10. A method for receiving wireless power comprising:

receiving, using a pair of antennas modules, wireless power;

selectively connecting, using a switching module, the pair of antennas modules to a Direct Current (DC) combining circuit or a Radio Frequency (RF) combining circuit; and

receiving, using a detector module, DC power P_{Rx} from the DC combining circuit or the RF combining circuit, wherein the detector module is configured to trigger the switching module to connect the pair of antenna modules to the DC combining circuit when the received power P_{Rx} exceeds a threshold power $P_{Threshold}$, and is configured to trigger the switching module to connect the pair of antenna modules to the RF combining circuit when the received power P_{Rx} is less than the threshold power $P_{Threshold}$.

11. The method according to claim 10 wherein the DC combining circuit comprises:

a first and a second DC combining rectifier, whereby the first DC combining rectifier is configured to receive the wireless power from one of the antenna modules and the second DC combining rectifier is configured to receive the wireless power from another one of the antenna modules; and

whereby the first and second DC combining rectifiers are configured to convert the wireless power from the pair of antenna modules to DC power P_{Rx} and to provide the DC power P_{Rx} , to the detector module.

12. The method according to claim 10, wherein the RF combining circuit comprises:

a first and a second beam-forming module, whereby the first beam-forming module is configured to receive the wireless power from the one of the antenna modules and the second beam-forming module is configured to receive the wireless power from the another one of the antenna modules;

a RF combining rectifier configured to convert the beam-formed wireless power from the first and second beam-forming modules to DC power P_{Rx} and to provide the DC power P_{Rx} , to the detector module.

13. The method according to claim 12 whereby the first and second beam-forming modules are configured to optimize the wireless power received from the pair of antenna modules.

14. The method according to claim 12, wherein the first and second beam-forming modules each comprise a phase-shifter controllable by the detector module.

15. The method according to claim 10 whereby the one of the antenna modules comprises a pair of antennas and the another one of the antenna modules comprises another pair of antennas.
16. The method according to claim 10 wherein the switching module comprises a plurality of RF switches.
17. The method according to claim 12 whereby the one of the antenna modules comprises a pair of antennas and the another one of the antenna modules comprises another pair of antennas, and wherein the first and second beam-forming modules comprise a plurality of phase-shifters controllable by the detector module, whereby each phase-shifter is configured to transfer wireless power from an antenna to the RF combining rectifier.