

~~WHAT IS CLAIMED IS:~~**CLAIMS**

1. A method of wireless communication performed by a user equipment (UE), comprising:
 - performing channel state information (CSI) measurements on one or more reference signal transmissions from a base station;
 - determining, based at least in part on the CSI measurements, a set of non-zero linear combination complex coefficients for weighting and co-phasing for a linear combination of a plurality of frequency domain basis vectors and a plurality of spatial domain basis vectors;
 - and
 - transmitting a CSI feedback, wherein a first part of the CSI feedback includes at least an indication of a number of non-zero linear combination complex coefficients of the set of non-zero linear combination complex coefficients with regard to all layers of a communication link between the UE and the base station.
2. The method of claim 1, wherein the indication of the number of non-zero linear combination complex coefficients of the set of non-zero linear combination complex coefficients has a fixed bitwidth based at least in part on a configured maximum number of layers of the communication link.
3. The method of claim 1, wherein a bitwidth of the indication is independent of a rank indicator of the CSI feedback.
4. The method of claim 1, wherein a second part of the CSI feedback includes an index identifying a selected subset of frequency domain basis vectors from a set of potential frequency domain basis vectors.
5. The method of claim 4, wherein the index is a combination index with a value between zero and a set of all basis vectors of the frequency domain basis vectors.
6. The method of claim 1, wherein a second part of the CSI feedback includes:
 - a first index identifying a particular frequency domain basis vector of a selected subset of frequency domain basis vectors, and

a second index identifying remaining frequency domain basis vectors of the selected subset of frequency domain basis vectors.

7. The method of claim 6,

wherein the remaining frequency domain basis vectors are selected from a subset of a set of potential frequency domain basis vectors, and

wherein the subset of the set of potential frequency domain basis vectors are adjacent to the particular frequency domain basis vector.

8. The method of claim 7, wherein a size of the subset of the set of potential frequency domain basis vectors is based at least in part on a subband size of the CSI feedback.

9. The method of claim 1, wherein a second part of the CSI feedback identifies positions of the set of non-zero linear combination complex coefficients, or of a set of zero-value linear combination complex coefficients.

10. The method of claim 9, wherein the positions are identified using a respective bitmap for each layer of the CSI feedback.

11. The method of claim 1, wherein a second part of the CSI feedback jointly identifies respective amplitude and phase values of the set of non-zero linear combination complex coefficients for all layers of the communication link.

12. A method of wireless communication performed by a base station, comprising:
receiving channel state information (CSI) feedback for a communication link with a user equipment (UE),

wherein a first part of the CSI feedback includes at least an indication of a number of non-zero linear combination complex coefficients of a set of non-zero linear combination complex coefficients with regard to all layers of the communication link, and

wherein the set of non-zero linear combination complex coefficients are for weighting and co-phasing for a linear combination of a plurality of frequency domain basis vectors and a plurality of spatial domain basis vectors; and

performing a communication on the communication link between the UE and the base station based at least in part on the CSI feedback.

13. The method of claim 12, wherein the indication of the number of non-zero linear combination complex coefficients of the set of non-zero linear combination complex coefficients has a fixed bitwidth based at least in part on a configured maximum number of layers of the communication link.
14. The method of claim 12, wherein a second part of the CSI feedback includes an index identifying a selected subset of frequency domain basis vectors from a set of potential frequency domain basis vectors.
15. The method of claim 12, wherein a second part of the CSI feedback includes:
 - a first index identifying a particular frequency domain basis vector of a selected subset of frequency domain basis vectors, and
 - a second index identifying remaining frequency domain basis vectors of the selected subset of frequency domain basis vectors.
16. The method of claim 15,
 - wherein the remaining frequency domain basis vectors are selected from a subset of a set of potential frequency domain basis vectors, and
 - wherein the subset of the set of potential frequency domain basis vectors are adjacent to the particular frequency domain basis vector.
17. The method of claim 16, wherein a size of the subset of the set of potential frequency domain basis vectors is based at least in part on a subband size of the CSI feedback.
18. The method of claim 12, wherein a second part of the CSI feedback identifies positions of the set of non-zero linear combination complex coefficients, or of a set of zero-value linear combination complex coefficients.
19. The method of claim 18, wherein the positions are identified using a respective bitmap for each layer of the CSI feedback.

20. The method of claim 12, wherein a second part of the CSI feedback jointly identifies respective amplitude and phase values of the set of non-zero linear combination complex coefficients for all layers of the communication link.

21. ~~An apparatus for method of~~ wireless communication performed by ~~the~~a user equipment (UE), comprising means for carrying out the method of any one of claims 1 to 11.:

~~performing channel state information (CSI) measurements on one or more reference signal transmissions from a base station;~~

~~determining, based at least in part on the CSI measurements, a set of non-zero linear combination complex coefficients for weighting and co-phasing for a linear combination of a plurality of frequency domain basis vectors and a plurality of spatial domain basis vectors;~~
and

~~transmitting a CSI feedback, wherein a first part of the CSI feedback includes at least an indication of a number of the set of non-zero linear combination complex coefficients with regard to all layers of a communication link between the UE and the base station.~~

22.—~~The method of claim 21, wherein the indication of the number of the set of non-zero linear combination complex coefficients has a fixed bitwidth based at least in part on a configured maximum number of layers of the communication link.~~

23.—~~The method of claim 21, wherein a bitwidth of the indication is independent of a rank indicator of the CSI feedback.~~

24.—~~The method of claim 21, wherein a second part of the CSI feedback includes an index identifying a selected subset of frequency domain basis vectors from a set of potential frequency domain basis vectors.~~

25.—~~The method of claim 24, wherein the index is a combination index with a value between zero and a set of all basis vectors of the frequency domain basis vectors.~~

26.—~~The method of claim 21, wherein a second part of the CSI feedback includes:~~
~~a first index identifying a particular frequency domain basis vector of a selected subset of frequency domain basis vectors, and~~

a second index identifying remaining frequency domain basis vectors of the selected subset of frequency domain basis vectors.

27.— The method of claim 21,

wherein a second part of the CSI feedback identifies positions of the set of non-zero linear combination complex coefficients, or of a set of zero-value linear combination complex coefficients,

wherein the positions are identified using a respective bitmap for each layer of the CSI feedback.

2822. An apparatus for method of wireless communication performed by thea base station, comprising means for carrying out the method of any one of claims 12 to 20.:

receiving channel state information (CSI) feedback for a communication link with a user equipment (UE),

wherein a first part of the CSI feedback includes at least an indication of a number of a set of non-zero linear combination complex coefficients with regard to all layers of the communication link,

wherein the set of non-zero linear combination complex coefficients are for weighting and co-phasing for a linear combination of a plurality of frequency domain basis vectors and a plurality of spatial domain basis vectors; and

performing a communication on the communication link between the UE and the base station based at least in part on the CSI feedback.

29.— The method of claim 28, wherein the indication of the number of the set of non-zero linear combination complex coefficients has a fixed bitwidth based at least in part on a configured maximum number of layers of the communication link.

30.— The method of claim 28, wherein a second part of the CSI feedback includes an index identifying a selected subset of frequency domain basis vectors from a set of potential frequency domain basis vectors.