in relation to waves that are incident on the region when the condition in the region is known is called a forward problem and easy. On the other hand, obtaining the condition in a region when data on scattered waves is known is called an inverse problem and not easy.
[0006]

Moreover, a variety of measurement data is obtained depending on, for example, different arrangements of transmitting elements and receiving elements. This is assumed to increase the spatial resolution for imaging the structure of a scatterer. On the other hand, different arrangements of transmitting elements and receiving elements complicates computational processing and increase processing delays. Thus, it is difficult to increase the spatial resolution for imaging the structure of a scatterer.
[0007]

In view of this, embodiments of the present disclosure provide an imaging device or the like that is capable of imaging the structure of a scatterer included in an object that is present in a region by using a wave and increasing the spatial resolution for imaging the structure of the scatterer while avoiding complication of computational processing.

[Solution to Problem]
[0008]

According to a first aspect of the present disclosure, there is provided an imaging device including: a transmitter row including a plurality of transmitters that are aligned in a straight line and that transmit a wave to a region to be measured, a receiver row including a plurality of receivers and provided at an interval from the transmitter row, the plurality of receivers being aligned in a different straight line parallel to the straight line along which the plurality of transmitters are aligned, and receiving the wave from the region, and an information processing circuit that derives an imaging function in accordance with measurement data and a distance and uses the imaging function to image a structure of a scatterer included in an object that is present in the region, the imaging function corresponding to a scattering field function relating to scattering of the wave, the measurement data being obtained by all or some combinations of the plurality of transmitters and the plurality of receivers, the distance being a distance between the straight line along which the plurality of transmitters are aligned and the different straight line along which the plurality of receivers are aligned.
[0008a]

According to a second aspect of the present disclosure, there is provided an imaging method including the steps of: causing a plurality of transmitters included in a transmitter row and aligned in a straight line to transmit a wave to a region to be measured; causing

a plurality of receivers included in a receiver row provided at an interval from the transmitter row to receive the wave from the region, the plurality of receivers being aligned in a different straight line that is parallel to the straight line along which the plurality of transmitters are aligned; and deriving an imaging function in accordance with measurement data and a distance and using the imaging function to image a structure of a scatterer included in an object that is present in the region, the imaging function corresponding to a scattering field function relating to scattering of the wave, the measurement data being obtained by all or some combinations of the plurality of transmitters and the plurality of receivers, the distance being a distance between the straight line along which the plurality of transmitters are aligned and the different straight line along which the plurality of receivers are aligned.

[0009]

Note that comprehensive or specific aspects may be implemented as systems, devices, methods, integrated circuits, computer programs, or non-transitory media such as computer-readable CD-ROMs, or may be implemented as any combination of systems, devices, methods, integrated circuits, computer programs, and recording media.

[Advantageous Effects of Invention]

[0010]

According to embodiments of the present disclosure, it becomes possible to image the structure of a scatterer included in an object that is present in a region by using a wave and to increase the spatial resolution for imaging the structure of the scatterer while avoiding complication of computational processing.

[Brief Description of Drawings]

[0011]

[FIG. 1]

FIG. 1 is a diagram showing multistatic antennas according to a reference example.

[FIG. 2]

FIG. 2 is a diagram showing an example of an S-Array multistatic antenna according to an embodiment.

[FIG. 3]

FIG. 3 is a diagram showing an example of coordinates relating to an S-Array according to the embodiment.

[FIG. 4]

FIG. 4 is an outside drawing of the S-Array according to the embodiment.

[FIG. 5]

FIG. 5 is a conceptual diagram showing a one-dimensional