Claims

1. A bond-pressure-measuring device, for determining a pressure map during application of pressure to at least one measurement layer (3) between a first pressure body (5) and a second pressure body (6) and for determining the pressure distribution in the measurement layer (3), which is applied with pressure by the pressure bodies (5, 6) with:

- at least one transmitter (7) located on one peripheral edge (3u) of the measurement layer (3) for emission of signals (9) in the form of electromagnetic waves along a first signal route which runs through the measurement layer (3) and at least one other signal route which runs through the measurement layer (3),
- at least one receiver (8, 8') located on the peripheral edge (3u) for the reception of the signals (9) of the first signal route and other signal route(s), which signals are sent by the transmitter (7) through the measurement layer (3) and can be changed when pressure is applied.

2. The bond-pressure-measuring device as claimed in Claim 1, which can be used in a wafer processing device, especially in-situ.

3. The bond-pressure-measuring device as claimed in at least one of the preceding claims, wherein the transmitter (7) and/or the receiver (8, 8') can be moved along the peripheral edge (3u).

4. The bond-pressure-measuring device as claimed in at least one of the preceding claims, which has several transmitters (7) distributed on the peripheral edge (3u) and/or several receivers (8, 8') which are distributed on the peripheral edge (3u) and which are assigned to one, especially opposite transmitter (7) at a time, especially at least two receivers (8, 8') per transmitter (7).

5. The bond-pressure-measuring device as claimed in at least one of the preceding claims, wherein each transmitter (7) emits several signal routes, especially at the same time, and/or each receiver (8, 8') is assigned to one single signal route at a time.

6. The bond-pressure-measuring device as claimed in at least one of the preceding claims with one evaluation unit for determining localized pressure values of the pressure map along the signal routes, especially by a transform, preferably Radon transform, of the signals (9) received by at least one receiver (8, 8').

7. The bond-pressure-measuring device as claimed in at least one of the preceding claims, wherein the at least one receiver (8, 8') is made to acquire optical properties of the signal (9), especially one or more of the following optical properties:

- double refraction
- index of refraction
- mode of signals shaped as transverse electromagnetic waves
- transit time
- spectral coding.

8. A bond-pressure-measuring method for determining a pressure map for pressure application to a measurement layer (3) between a first pressure body (5) and a second pressure body (6) and for determining the pressure distribution in the measurement layer (3), which is applied with pressure by the pressure bodies (5, 6) with the following steps, especially the following sequence:

- arrangement of a measuring device according to one of the preceding claims between the first pressure body (5) and the second pressure body (6),
- emission of signals (9) in the form of electromagnetic waves by the transmitter(s) (7) located on the peripheral edge (3u) along a first signal route which runs through the measurement layer (3) and at least one other signal route which runs through the measurement layer (3),
- reception of the signals (9) by the receiver(s) (8, 8') located on the peripheral edge (3u) for receiving the signals (9) of the first signal route and other signal route(s), which signals are sent by the transmitter(s) (9) through the measurement layer (3) and which can be changed when pressure is applied.