CLAIMS

WHAT IS CLAIMED IS:

1. A method for determining a polishing pad height in a polishing apparatus including a polishing table which supports a polishing pad, a polishing head which pressurizes a substrate onto a polishing surface of the polishing pad, and a dresser which dresses the polishing surface of the polishing pad, the method for determining a polishing pad height comprising:

a step of measuring a reference dresser height that is a height of a dressing surface of the dresser when the polishing surface of the polishing pad in an unused state is being pressed with a reference dressing load for polishing the substrate;

a step of calculating a correction amount for a dresser height corresponding to an amount of change in dressing load from the reference dressing load;

a step of measuring a current dresser height that is a current height of the dressing surface of the dresser when the polishing surface of the polishing pad is being pressed; and

a step of correcting the current dresser height using the correction amount.

2. The method for determining a polishing pad height according to claim 1,

wherein the step of calculating a correction amount for the dresser height includes steps of

measuring an Nth dresser height when the dresser is pressurizing the polishing pad with a first dressing load differing from the reference dressing load, and

calculating the correction amount that is a difference between the Nth dresser height and an N−1th dresser height, and

wherein the N−1th dresser height is the height of the dressing surface of the dresser when the polishing surface of the polishing pad is being pressed with the reference dressing load, and is measured prior to the Nth dresser height.

3. The method for determining a polishing pad height according to claim 2,

wherein a change in abrasion loss of the polishing pad from a time of measuring the N−1th dresser height to a time of measuring the Nth dresser height is substantially zero.

4. The method for determining a polishing pad height according to claim 2 or 3,

wherein the N−1th dresser height is the reference dresser height.

5. The method for determining a polishing pad height according to any one of claims 2 to 4,

wherein the step of calculating a correction amount for the dresser height further includes steps of

measuring an N+1th dresser height when the dresser is pressurizing the polishing pad with the first dressing load,

measuring an N+2th dresser height when the dresser is pressurizing the polishing pad with a second dressing load differing from the first dressing load, and

updating the correction amount based on a difference between the N+2th dresser height and the N+1th dresser height.

6. The method for determining a polishing pad height according to claim 5,

wherein a change in abrasion loss of the polishing pad from a time of measuring the N+1th dresser height to a time of measuring the N+2th dresser height is substantially zero.

7. The method for determining a polishing pad height according to claim 1,

wherein the step of calculating a correction amount for the dresser height is a step of calculating a correction amount for the dresser height using a relational expression expressing a relationship between the amount of change in dressing load and an amount of change in dresser height.

8. The method for determining a polishing pad height according to any one of claims 1 to 7, further comprising:

a step of calculating an abrasion loss of the polishing pad by subtracting the current dresser height being corrected from the reference dresser height.

9. A polishing system comprising:

at least one polishing apparatus that polishes a substrate; and

a polishing pad height monitoring part that is connected to the polishing apparatus,

wherein the polishing apparatus includes

a polishing table which supports a polishing pad,

a polishing head which pressurizes the substrate onto a polishing surface of the polishing pad,

a dresser which dresses the polishing surface of the polishing pad, and

a displacement sensor which measures a dresser height, and

wherein the polishing pad height monitoring part includes

a correction amount calculation part which calculates a correction amount for the dresser height corresponding to an amount of change in dressing load from a reference dressing load, and

a dresser height correction part which corrects a measuring amount of a current dresser height, that is a current height of the dressing surface of the dresser when the polishing surface of the polishing pad is being pressed, measured by the displacement sensor using the correction amount.

10. A polishing system comprising:

at least one polishing apparatus that polishes a substrate; and

a polishing pad height monitoring part that is connected to the polishing apparatus,

wherein the polishing apparatus includes

a polishing table which supports a polishing pad,

a polishing head which pressurizes the substrate onto a polishing surface of the polishing pad,

a dresser which dresses the polishing surface of the polishing pad, and

a displacement sensor which measures a dresser height, and

wherein the polishing pad height monitoring part includes

a correction amount calculation part which calculates a correction amount for the dresser height corresponding to an amount of change in dressing load, and

a dresser height correction part which corrects the dresser height measured by the displacement sensor using the correction amount,

wherein the correction amount calculation part is configured to calculate the correction amount that is a difference between an Nth dresser height and an N−1th dresser height,

wherein the N−1th dresser height is a height of a dressing surface of the dresser when the polishing surface of the polishing pad is being pressed with a reference dressing load, and

wherein the Nth dresser height is a height of the dressing surface of the dresser when the polishing surface of the polishing pad is being pressurized with a first dressing load differing from the reference dressing load.

11. The polishing system according to claim 9 or 10,

wherein the correction amount calculation part stores a relational expression expressing a relationship between the amount of change in dressing load and an amount of change in dresser height.