What is claimed is:

1. A method for dressing a polishing member by causing a dresser to swing on the polishing member used for a polishing apparatus for a substrate, the dresser being enabled to adjust a swing speed in a plurality of scan areas set on the polishing member along a swing direction, the method comprising:

a step of measuring a surface height of the polishing member in a plurality of monitoring areas set in advance on the polishing member along the swing direction of the dresser;

a step of creating a dress model matrix defined from the monitoring areas, the scan areas and a dress model;

a step of calculating a height profile predicted value using the dress model and the swing speed in each scan area or a staying time;

a step of setting an evaluation index based on a difference from a target value of a height profile of the polishing member; and

a step of setting the swing speed in each scan area of the dresser based on the evaluation index,

wherein at least one of parameters to determine the target value of the height profile or the evaluation index is made to change automatically.

2. The dressing method according to claim 1, wherein the parameter is set every time the polishing member is dressed.

3. The dressing method according to claim 1, wherein the parameter is a convergence time target wear amount A_{tg} to determine a target value of the height profile.

4. The dressing method according to claim 1, wherein the evaluation index is set based on a difference between a moving speed of the scanning area and a reference value of the moving speed.

5. The dressing method according to claim 1, wherein the evaluation index is set based on a difference in a moving speed between the adjacent scanning areas.

6. The dressing method according to claim 1, wherein the evaluation index is set based on a difference in reference value of a moving speed between the adjacent scanning areas.

7. The dressing method according to claim 6, wherein the parameter is a weighting factor corresponding to the difference in the reference value of a moving speed between the adjacent scanning areas.

8. The dressing method for polishing apparatus dressing method according to claim 1, wherein an evaluation index creation section sets a weighting factor for a difference of a height profile of the polishing member from a target value, a difference of a moving speed from a reference value and a difference in the moving speed between the adjacent scanning areas.

9. The dressing method according to claim 1, further comprising a step of calculating a cut rate of the polishing member in a plurality of the monitoring areas.

10. The dressing method according to claim 9, further comprising a step of storing the cut rate of the polishing member from the measured value of the surface height, wherein a height profile of the polishing member is estimated based on the stored cut rate.

11. The dressing method according to claim 1, wherein a restriction is placed on a total time of the dresser staying in each scan area as a condition of calculating a moving speed of the dresser.

12. The dressing method according to claim 1, wherein a restriction is placed on an upper limit value and a lower limit value of a moving speed of the dresser as a condition of calculating the moving speed of the dresser.

13. The dressing method according to claim 1, wherein an optimization calculation for minimizing the evaluation index is performed to calculate a moving speed of the dresser.

14. The dressing method according to claim 13, wherein the optimization calculation is quadratic programming.

15. The dressing method according to claim 1, wherein the dress model matrix is set based on at least one element of a cut rate model, a dresser diameter and scanning speed control.

16. A polishing apparatus that polishes a substrate placed on and in slidable contact with a polishing member, comprising:

a dresser that dresses the polishing member by swinging on the polishing member, a swing speed of which is adjustable in a plurality of scan areas set on the polishing member along a swing direction;

a height detection section that measures a surface height of the polishing member in a plurality of monitoring areas set in advance on the polishing member along the swing direction of the dresser;

a dress model matrix creation section that creates a dress model matrix defined from a plurality of monitoring areas, scan areas and a dress model;

an evaluation index creation section that calculates a height profile predicted value using the dress model, the swing speed in each scan area or a staying time and sets an evaluation index based on a difference from a target value of a height profile of the polishing member;

a moving speed calculation section that calculates a moving speed in each scan area of the dresser based on the evaluation index; and

a parameter setting section that automatically changes at least one of parameters for determining the target value of the height profile and the evaluation index.

17. A method for dressing a polishing member by causing a dresser to swing on the polishing member used for a polishing apparatus for a substrate, the dresser being enabled to adjust a swing speed in a plurality of scan areas set on the polishing member along a swing direction, the method comprising:

a step of measuring a surface height of the polishing member in a plurality of monitoring areas set in advance on the polishing member along the swing direction of the dresser;

a step of correcting the surface height of the polishing member based on a measurement interval of the surface height and an amount of fluctuation in a measured value of the surface height;

a step of creating a dress model matrix defined from the monitoring area, the scan area and a dress model;

a step of calculating a height profile predicted value using the dress model and the swing speed in each scan area or a staying time;

a step of setting an evaluation index based on a difference from a target value of a height profile of the polishing member; and

a step of setting the swing speed in each scan area of the dresser based on the evaluation index.

18. The method according to claim 17, wherein the step of correcting is performed when the measurement interval of the surface height exceeds a reference value and when the amount of fluctuation in the measured value of the surface height exceeds a threshold.

19. The method according to claim 17, wherein in the step of correcting, the amount of fluctuation in the measured value of the surface height is added to or subtracted from the measured value of the surface height for a past certain period.

20. The method according to claim 18, wherein the threshold when the measured value of the surface height increases and the threshold when the measured value of the surface height decreases have different values.

21. A polishing apparatus that polishes a substrate placed on and in slidable contact with a polishing member, comprising:

a dresser that dresses the polishing member by swinging on the polishing member, a swing speed of which is adjustable in a plurality of scan areas set on the polishing member along a swing direction;

a height detection section that measures a surface height of the polishing member in a plurality of monitoring areas set in advance on the polishing member along the swing direction of the dresser;

a height correction section that corrects the surface height of the polishing member based on a measurement interval of the surface height and an amount of fluctuation in the measured value of the surface height;

a dress model matrix creation section that creates a dress model matrix defined from a plurality of monitoring areas, scan areas and dress models;

an evaluation index creation section that calculates a height profile predicted value using the dress model and the swing speed in each scan area or a staying time and sets an evaluation index based on a difference from a target value of a height profile of the polishing member; and

a moving speed calculation section that calculates a moving speed in each scan area of the dresser based on the evaluation index.