What is claimed is:

1. A liquid processing method comprising:

starting the supply of a processing liquid to a surface of a substrate at an eccentric position at a distance from the center of rotation of the substrate, and moving the position on the substrate to which the processing liquid is supplied toward the center of rotation of the substrate while rotating the substrate at a first rotational speed; and,

after the processing liquid supply position has reached the center of rotation of the substrate, rotating the substrate at a second rotational speed which is higher than the first rotational speed, thereby allowing the processing liquid to spread toward the periphery of the substrate,

wherein the amount of the processing liquid supplied to the surface of the substrate per unit time is made smaller when the substrate is rotating at the first rotational speed than that when the substrate is rotating at the second rotational speed.

2. The liquid processing method according to claim 1, further comprising initially coating a pre-wetting liquid, which promotes the spread of the processing liquid to the periphery of the substrate, onto an area of the surface of the substrate which lies outside the position at which the supply of the processing liquid is started.

3. The liquid processing method according to claim 1, wherein the supply of the processing liquid to the surface of the substrate is started at a position whose distance to the center of rotation of the substrate is more

than 0% and not more than 40% of the radius of the substrate.

4. The liquid processing method according to claim 1, wherein the substrate is rotated at least one revolution after starting the supply of the processing liquid and before moving the processing liquid supply position toward the center of rotation of the substrate.

5. The liquid processing method according to claim 1, wherein the moving speed of the processing liquid supply position is increased as it approaches the center of rotation of the substrate.

6. The liquid processing method according to claim 1, wherein the rotational speed of the substrate is increased as the processing liquid supply position approaches the center of rotation of the substrate.

7. The liquid processing method according to claim 1, wherein the distance between an outlet opening for ejecting the processing liquid toward the substrate and the surface of the substrate is made shorter when the substrate is rotating at the second rotational speed than that when the substrate is rotating at the first rotational speed.

8. A non-transitory recording medium storing a program for causing an apparatus to perform the liquid processing method according to claim 1.

9. A liquid processing apparatus comprising:

a rotary holder configured to hold and to rotate a substrate;

a nozzle disposed above the substrate;

a nozzle moving section configured to move the nozzle;

a processing liquid supply section configured to supply a processing liquid to the nozzle; and

a controller configured to control the rotary holder to rotate the substrate at a first rotational speed, to control the nozzle moving section to move the nozzle to a position above an eccentric position on the substrate which lies at a distance from the center of rotation of the substrate, to control the processing liquid supply section to start the supply of the processing liquid to the surface of the substrate at the eccentric position at a distance from the center of rotation of the substrate, to control the nozzle moving section so that the position on the substrate to which the processing liquid is supplied moves toward the center of rotation of the substrate and, after the processing liquid supply position has reached the center of rotation of the substrate, to control the rotary holder to rotate the substrate at a second rotational speed which is higher than the first rotational speed, thereby allowing the processing liquid to spread on the surface of the substrate, so as to control the processing liquid supply section such that the amount of the processing liquid supplied to the surface of the substrate per unit time is made smaller when the substrate is rotating at the first rotational speed than that when the substrate is rotating at the second rotational speed.

10. A liquid processing method comprising:

starting the supply of a processing liquid to a surface of a substrate at an eccentric position at a distance from the center of rotation of the substrate, and moving the position on the substrate to which the

processing liquid is supplied toward the center of the rotation of the substrate while rotating the substrate at a first rotational speed; and,

after the processing liquid supply position has reached the center of rotation of the substrate, rotating the substrate at a second rotational speed which is higher than the first rotational speed, thereby allowing the processing liquid to spread toward the periphery of the substrate,

wherein the amount of the processing liquid supplied to the surface of the substrate per unit time is made smaller when starting the supply of the processing liquid than that when the processing liquid supply position is moving toward the center of rotation of the substrate.

11. The liquid processing method according to claim 10, further comprising initially coating a pre-wetting liquid, which promotes the spread of the processing liquid to the periphery of the substrate, onto an area of the surface which lies outside the position at which the supply of the processing liquid is started.

12. The liquid processing method according to claim 10, wherein the supply of the processing liquid to the surface of the substrate is started at a position whose distance to the center of rotation of the substrate is more than 0% and not more than 40% of the radius of the substrate.

13. The liquid processing method according to claim 10, wherein the substrate is rotated at least one revolution after starting the supply of the processing

liquid and before moving the processing liquid supply position toward the center of rotation of the substrate.

14. The liquid processing method according to claim 10, wherein the moving speed of the processing liquid supply position is increased as it approaches the center of rotation of the substrate.

15. The liquid processing method according to claim 10, wherein the rotational speed of the substrate is increased as the processing liquid supply position approaches the center of rotation of the substrate.

16. The liquid processing method according to claim 10, wherein the distance between an outlet opening for ejecting the processing liquid toward the substrate and the surface of the substrate is made shorter when the substrate is rotating at the second rotational speed than that when the substrate is rotating at the first rotational speed.

17. A non-transitory recording medium storing a program for causing an apparatus to perform the liquid processing method according to claim 10.

18. A liquid processing apparatus comprising:

a rotary holder configured to hold and to rotate a substrate;

a nozzle disposed above the substrate;

a nozzle moving section configured to move the nozzle;

a processing liquid supply section configured to supply a processing liquid to the nozzle; and

a controller configured to control the rotary holder to rotate the substrate at a first rotational speed, to

control the nozzle moving section to move the nozzle to a position above an eccentric position on the substrate which lies at a distance from the center of rotation of the substrate, to control the processing liquid supply section to start the supply of the processing liquid to the surface of the substrate at the eccentric position at a distance from the center of rotation of the substrate, to control the nozzle moving section so that the position on the substrate to which the processing liquid is supplied moves toward the center of rotation of the substrate and, after the processing liquid supply position has reached the center of rotation of the substrate, to control the rotary holder to rotate the substrate at a second rotational speed which is higher than the first rotational speed, thereby allowing the processing liquid to spread on the surface of the substrate, so as to control the processing liquid supply section such that the amount of the processing liquid supplied to the surface of the substrate per unit time is made smaller when starting the supply of the processing liquid than that when the processing liquid supply position is moving toward the center of rotation of the substrate.