

What is claimed is:

1. A polishing method, comprising:

rotating a polishing table that supports a polishing pad;

polishing a conductive film by pressing a substrate, having the conductive film formed on a surface thereof, against the polishing pad, while a polishing liquid, containing abrasive grains, is supplied onto the polishing pad;

obtaining a film thickness signal, which varies in accordance with a thickness of the conductive film, with use of an eddy current film-thickness sensor disposed in the polishing table;

determining, during polishing of the conductive film, a thickness of the polishing pad based on the film thickness signal;

determining a polishing rate of the conductive film corresponding to the determined thickness of the polishing pad;

calculating an expected amount of polishing of the conductive film to be polished at the determined polishing rate for a predetermined polishing time;

calculating a temporary end-point film thickness by adding the expected amount of polishing to a target thickness of the conductive film; and

terminating the polishing of the conductive film when the predetermined polishing time has elapsed from a point of time when the thickness of the conductive film has reached the temporary end-point film thickness.

2. The polishing method according to claim 1, wherein the polishing rate is determined from a polishing rate data indicating a relationship between thickness of the polishing pad and corresponding polishing rate.

3. The polishing method according to claim 1, wherein the film thickness signal comprises a resistance component and an inductive reactance component of an electric circuit of the eddy current film-thickness sensor, and

wherein the thickness of the polishing pad is determined from a pad thickness data indicating a relationship between thickness of the polishing pad and impedance that is

calculated from the resistance component and the inductive reactance component.

4. A polishing method, comprising:

rotating a polishing table that supports a polishing pad;

polishing a conductive film by pressing a substrate, having the conductive film formed on a surface thereof, against the polishing pad, while a polishing liquid, containing abrasive grains, is supplied onto the polishing pad;

obtaining a thickness of the conductive film from output values of an eddy current film-thickness sensor disposed in the polishing table;

calculating, during polishing of the conductive film, an amount of polishing of the conductive film per one rotation of the polishing table;

calculating an additional polishing time from the amount of polishing of the conductive film and a difference between a current thickness of the conductive film and a target thickness;

calculating a target polishing time by adding the additional polishing time to a current polishing time at which the current thickness is obtained; and

terminating the polishing of the conductive film when the target polishing time is reached.