polishing surface of a polishing pad while supplying a polishing liquid onto the polishing surface. The polishing liquid is slurry containing abrasive grains, such as silica (SiO_2) or ceria (CeO_2).

[0004] A polishing apparatus for performing CMP (Chemical Mechanical Polishing) described above includes a polishing table having a polishing pad and a substrate holding device called a polishing head for holding a semiconductor wafer (substrate). The polishing apparatus is configured to polish an insulating film, a metal film, or the like on the substrate by pressing the substrate against the polishing pad with a predetermined pressure while holding the substrate by the substrate holding device.

[0005] When the substrate is polished, the abrasive grains and polishing debris adhere to the surface of the polishing pad, and the surface shape and condition of the polishing pad change, resulting in deterioration of polishing performance. As a result, as polishing of substrate is repeated, a polishing rate decreases and uneven polishing occurs. Therefore, in order to repair the surface shape and condition of the deteriorated polishing pad, dressing (conditioning) of the polishing pad is performed using a dresser.

[0006] The surface shape and condition of the polishing pad, i.e., a surface property of the polishing pad is one of factors that determine the CMP performance. Therefore, it is desirable to directly measure the surface property of the polishing pad and reflect a measured value of the polishing pad in the dressing condition. Therefore, in a conventional polishing apparatus, a device for directly measuring the surface property of the polishing pad is used to determine the dressing condition. In this specification, a device for measuring a surface property of a polishing pad is referred to as a "surface property measuring apparatus".

Citation List

Patent Literature

[0007] Patent document 1: International Patent Publication No. WO 2016/111335

Patent document 2: Japanese laid-open patent publication No. 2015-174156

Patent document 3: Japanese laid-open patent publication No. 2019-193970