

ABSTRACT

Disclosed is a system for chemical mechanical polishing and planarization, said system at least comprising a polishing head. The polishing head comprises: a polishing head body; a rigid disc, on a lower surface of which a plurality of air holes are formed and inside of which a third air cavity in communication with the air holes is formed; an elastic unit, which is at least partially of an annular structure, the elastic unit being separately connected to the polishing head body and the rigid disc, and the polishing head body, the elastic unit, and the rigid disc forming a second air cavity; and a retaining ring, which is located below the polishing head body. When the third air cavity is in a negative pressure state, the lower surface of the rigid disc can make contact with and suction onto a wafer substrate, the pressure in the second air cavity can be controlled so as to drive the elastic unit to flexibly move, so as to assist the rigid disc and the wafer substrate to float, achieving chemical mechanical polishing of the wafer substrate. According to the present invention, rigid driving in the rigid disc solves the problem of breakage or changes in elastic modulus due to a flexible film being dragged under severe polishing conditions when the flexible film drives the wafer substrate to be polished, thus prolonging the service life of flexible parts.

FIG. 2