ABSTRACT

SYSTEM AND MEIHOD FOR CLEANING SILICON-COATED SURFACES IN AN ION IMPLANTER

A method and system for controllably stripping a portion of silicon (98) from a silicon coated surface, for example, from an interior portion of an ion implanter (10). The system comprises (i) a source (80) of gas comprised at least partially of a reactive gas, such as fluorine; and (ii) a dissociation device (70) such as a radio frequency (RF) plasma source located proximate the silicon coated surface for converting the reactive gas to a plasma of dissociated reactive gas atoms and for directing the dissociated reactive gas atoms toward the silicon coated surface. A control system (102) determines the rate of removal of the silicon (98) from the surface by controlling (i) a rate of source gas flow into and the amount of power supplied to the dissociation device, and (ii) the time of exposure of the silicon coated surface to the plasma. The invention is useful, among other things, for removing a contaminant-laden layer of silicon from a wafer-supporting disk (40) in an ion implanter, wherein the silicon coated surface has been formed by applying a layer (98) of silicon onto the surface by a plasma enhanced physical vapor deposition (PECVD) process.

FIG. 1