

PULSED PLATE PLASMA IMPLANTATION SYSTEM

Abstract of the Disclosure

Method and apparatus for treating a workpiece
implantation surface by causing ions to impact the workpiece
implantation surface. An implantation chamber defines a
5 chamber interior into which one or more workpieces can be
inserted. A support positions one or more workpieces within
an interior region of the implantation chamber so that
implantation surfaces of the workpieces are facing the
interior region. A dopant material in the form of a gas is
10 injected into the implantation chamber to cause the gas to
occupy a region of the implantation chamber in close proximity
to the one or more workpieces. A plasma of implantation
material is created within the interior region of the
implantation chamber. First and second conductive electrodes
15 positioned within the implantation chamber include conductive
surfaces in proximity to the chamber interior occupied by the
one or more workpieces. A voltage source outside the chamber
relatively biases the first and second conductive electrodes.
A control circuit utilizes the voltage source for repeatedly
20 relatively biasing the first and second conductive electrodes
to energize the electrodes with a sequence of pulses that both
ionize the gas molecules injected into the chamber and
accelerate the ionized gas molecules toward the implantation
surfaces of the one or more workpieces.

(Fig. 1)