

ABSTRACT

GAS DISTRIBUTION SYSTEM FOR A CVD
PROCESSING CHAMBER

ABSTRACT OF THE DISCLOSURE

The present invention provides an apparatus for depositing a film on a substrate comprising a processing chamber, a substrate support member disposed within the chamber, a first gas inlet, a second gas inlet, a plasma generator and a gas exhaust. The first gas inlet provides a first gas at a first distance from an interior surface of the chamber, and the second gas inlet provides a second gas at a second distance that is closer than the first distance from the interior surface of the chamber. Thus, the second gas creates a higher partial pressure adjacent the interior surface of the chamber to significantly reduce deposition from the first gas onto the interior surface. The present invention also provides a method for depositing a FSG film on a substrate comprising: introducing first gas through a first gas inlet at a first distance from an interior surface of the chamber, and introducing a second gas through a second gas inlet at a second distance from the interior surface of the chamber, wherein the second gas creates a higher partial pressure adjacent the interior surface of the chamber to prevent deposition from the first gas on the interior surface. Alternatively, the first gas is introduced at a different angle from the second gas with respect to a substrate surface.

Fig. 1